DECEMBER, 1960
VOL. III, NO. 8

roblems of Economics

Selected Articles from Soviet Economics Journals in English Translation

IN THIS ISSUE

T. Riabushkin: The Study of the Balance of the National Economy in the Socialist Countries (Planovoe Khoziaistvo, No. 5, 1960).

V. Nemchinov: Some Theoretical Questions of Inter-Branch and Inter-Regional Balances of Production and Distribution of Output (Planovoe Khoziaistvo, No. 5, 1960).

L. Berri and A. Efimov: Methods of Preparing an Inter-Branch Balance (Planovoe Khoziaistvo, No. 5, 1960).

B. Svetlichnyi: Soviet Town Planning Today (Voprosy Ekonomiki, No. 7, 1960).

Iu. S. Nekhoroshev: The Economic Nature of Remuneration for Inventions and Rationalization Suggestions (Vestnik Leningradskogo Universiteta, Seriia Ekonomiki, Filosofii i Prava, No. 3, 1960).

V. Rymalov: Economic Competition of the Two Systems and the Problem of Aid to Underdeveloped Countries (Mirovaia Ekonomika i Mezhdunarodnye Otnosheniia, No. 2, 1960).

V. Tiagunenko: Principal Structural Changes in the Economies of Underdeveloped Countries (Mirovaia Ekonomika i Mezhdunarodnye Otnosheniia, No. 3, 1960).

PUBLISHED IN THE UNITED STATES BY
INTERNATIONAL ARTS AND SCIENCES PRESS
156 5th AVENUE • NEW YORK 10, NEW YORK

Problems of Economics

TABLE OF CONTENTS

L. III, NO. 8 December, 1960

THE METHOD OF BALANCES

RIABUSHKIN: The Study of the Balance of the National Economy in the Socialist Countries
(Planovoe Khoziaistvo, No. 5, 1960) 3

NEMCHINOV: Some Theoretical Questions of Inter-Branch and Inter-Regional Balances of Production and Distribution of Output
(Planovoe Khoziaistvo, No. 5, 1960) 8

BERRI AND A. EFIMOV: Methods of Preparing an Inter-Branch Balance
(Planovoe Khoziaistvo, No. 5, 1960) 17

TOWN PLANNING

SVETLICHNYI: Soviet Town Planning Today
(Voprosy Ekonomiki, No. 7, 1960) 29

INCENTIVES

S. NEKHOROSHEV: The Economic Nature of Remuneration for Inventions and Rationalization Suggestions
(Vestnik Leningradskogo Universiteta, Seriia Ekonomiki, Filosofii i Prava, No. 3, 1960) 37

ECONOMIC RELATIONS WITH UNDERDEVELOPED COUNTRIES

RYMALOV: Economic Competition of the Two Systems and the Problem of Aid to Underdeveloped Countries
(Mirovaia Ekonomika i Mezhdunarodnye Otnosheniia, No. 2, 1960) 43

TIAGUNENKO: Principal Structural Changes in the Economies of Underdeveloped Countries
(Mirovaia Ekonomika i Mezhdunarodnye Otnosheniia, No. 3, 1960) 52

PROBLEMS OF ECONOMICS

Selected Articles from Soviet Economics

Journals in English Translation

PROBLEMS OF ECONOMICS is a complete, literal translation, without editorial comment, of articles selected from the following Soviet publications:

VESTNIK LENINGRADSKOGO UNIVERSITETA, SERIIA EKONOMIKI – JOURNAL OF LENINGRAD UNIVERSITY, ECONOMIC SERIES
VESTNIK MOSKOVSKOGO UNIVERSITETA, SERIIA EKONOMIKI – JOURNAL OF MOSCOW UNIVERSITY, ECONOMIC SERIES
VESTNIK STATISTIKI – JOURNAL OF STATISTICS
VNESHNIAIA TORGOVLIA – FOREIGN TRADE
VOPROSY EKONOMIKI – PROBLEMS OF ECONOMICS
MIROVAIA EKONOMIKA I MEZHDUNARODNYE OTNOSHENIIA – WORLD ECONOMY AND INTERNATIONAL RELATIONS
NAUCHNYE DOKLADY VYSSHEI SHKOLY – EKONOMICHESKIE NAUKI – SCIENTIFIC PAPERS OF HIGHER EDUCATIONAL INSTITUTIONS, ECONOMIC SCIENCES
PLANOVOE KHOZIAISTVO – PLANNED ECONOMY
EKONOMICHESKAIA GAZETA – ECONOMIC GAZETTE
SOTSIALISTICHESKII TRUD – SOCIALIST LABOR

Articles from other publications are included from time to time if they are considered of sufficient interest for translation.

PROBLEMS OF ECONOMICS is published as a service for purposes of information and education. Twelve issues per year. Subscription rate: $50.00 per year; $4.50 per copy.

Managing Editor and Publisher: Myron E. Sharpe. Editor: Murray Yanowitch.

ADVISORY COMMITTEE

Walter Galenson, Institute of Industrial Relations, University of California
Gregory Grossman, Department of Economics, University of California
Leon M. Herman, Legislative Reference Service, The Library of Congress
Franklyn D. Holzman, Department of Economics, University of Washington
Holland Hunter, Department of Economics, Haverford College
Lynn Turgeon, Department of Economics, Hofstra College

NOTE: Members of the Advisory Committee make suggestions of articles for translation. The Editor, however, is solely responsible for the final choice of articles and for all other matters pertaining to the magazine.

INTERNATIONAL ARTS AND SCIENCES PRESS
156 5th Avenue, New York 10, N. Y.

© Copyright 1960 by Myron E. Sharpe. All rights reserved.

Planovoe Khoziaistvo, No. 5, 1960

RIABUSHKIN:

e Study of the Balance of the National Economy in the

:ialist Countries*

he first International Conference on the prob-
s of working out national economic balances and
pplying the balance sheet method in planning
held at the end of 1959 in Warsaw. The confer-
e was attended by delegates from institutes of
nomics of science academies, economic insti-
s of state planning committees, and by officials
tate planning committees and central statistical
orities of the socialist countries.

he following basic problems were on the confer-
e agenda:

General methodology of working out a national
nomic balance and the latter's utilization in eco-
ic analysis.

Methods of calculating and measuring the
c indicators of the balance sheet.

Utilization of the balance sheet method in
ning.

Construction and use of chessboard balance
ts of interrelations in the economic branches.

Use of mathematical methods for calculating
ous economic indicators directly or indirectly
ted to the national economic balance.

Methods of comparing the synthetic indicators
fferent countries.

ne vast experience accumulated in the Soviet
n in the field of working out national economic
nces and using the balance sheet method in
ning has been taken as the point of departure in
scientific and practical work conducted in this
re by the Asian and European socialist coun-
s. The characteristic features of every coun-
s economic and social development have been
odied in some specific aspects of their balance
ts, but the general principles in this field have
ained identical in all countries of the socialist
p.

ne theoretical foundations of the balance sheet
e national economy are provided by the

*stracts from the Warsaw Conference.

Marxist-Leninist teachings on expanded reproduction. This determines the methodology used in working out national economic balances in socialist countries which differ fundamentally from those devised by bourgeois statistics. The actual structure of the accounts -- the calculation of the social product, labor resources, financial resources -- is about the same in different countries. At the Warsaw Conference the general problems of methodology in handling the accounts were discussed in detail; these problems were also considered in the reports of the Soviet economists. (1)

It will be recalled that the elaboration of the national economic balance method in the USSR was accompanied by debates on various theoretical and practical aspects of this problem. At present, too, there is a discussion in progress on certain problems related to the pattern of the national economic balance as a whole, as well as on the characteristics of its principal indicators. Similar discussions are being conducted in the other socialist countries. At the above-mentioned conference a number of important problems related to the drawing up of national economic balances were considered. Among the more important ones were: the calculation of the gross social product; the classification of the productive and non-productive branches of the national economy; the adjustment of the value indicators in the balance sheet expressed in actual prices, etc.

A great deal of attention was devoted to the problems involved in ascertaining the volume of the aggregate social product, and in particular, the double counting of elements of the value of means of production which occurs in modern statistical indicators of the gross product. The conference arrived at the generally accepted conclusion that the existence of elements of double counting in the value indicators of the gross product is in principle economically valid inasmuch as it expresses objective branch interrelations and the formation

of the social product's value by means of the consecutive summation of the latter's elements in the process of the product's movement from one stage of processing to another, from one branch of production to another.

At the same time the conference stressed the necessity of applying systems of statistical economic indicators for a comprehensive analysis of the movement and structure of the social product. The only question which gave rise to differences of opinion was whether it is advisable to take into account and plan certain output indicators. This was discussed in the reports of Professor Mints (Institute of Economics, Polish Academy of Sciences), Professor Mateev (Bulgaria), the Czechoslovak delegate Comrade Wergner, and other speakers.

The conference also dwelt fairly extensively on the limits of the sphere of material production — in particular, on the part played by the passenger transport system in the process of social reproduction.

The opinion was unanimous that regardless of the way in which the passenger transport problem is resolved it is absolutely necessary to draw a clear-cut line in the national economic balance sheet between the spheres of material production and of services; in the balance constructions of bourgeois statistics the two spheres are combined and treated under one heading. A detailed breakdown of the national economy by branches in the national economic balance eases the planning bodies' task of rapidly computing any variant of the aggregate volume of the social product.

The conference discussed at length the utilization of balance sheets of branch interrelations (chessboard balance sheets). Soviet statisticians experimented with chessboard balance sheets as far back as the 1920's, but at the time they did not use higher algebra (matrix calculations for computing coefficients of production relations. Since the development of electronic computers these experiments have been resumed on a higher technical level. This work is handled in the main by the Scientific Research Institute of the USSR State Planning Committee. Similar experimental work has begun or is scheduled in the institutes of economics in most of the socialist countries. The statistical agencies and economic institutes of Hungary and Poland have already acquired a good deal of experience in developing methods of preparing balances of production interrelations. The delegates of these countries presented some interesting reports on the construction of chessboard balance sheets, offering a great deal of statistical material in support of their conclusions.

In Hungary a table of interrelations of branches was prepared on the basis of 1957 data on production and distribution of the national product. Although the size of the balance sheet is relatively small, containing 47 x 47 positions, it nevertheless offers an adequate picture of the essential interbranch relations in the national economy and the structure of material outlays for production purposes in the key branches. As the Hungarian Central Statistical Administration proceeded with further work in this field it was assisted by the USSR Academy of Sciences which assumed the task of computing, with electronic machines, the full costs per unit of product. The headings of the table of branch interrelations show the branches of Hungary's national economy. Industry is broken down into 32 positions which characterize the basic features of the Hungarian economy. A positive feature of the classification of the branches is that state socialist industry and the handicrafts (as well as small-scale private construction) are distinguished and shown separately.

The general pattern of the Hungarian balance of branch interrelations appears in the table shown on the top of page 5. (2)

The calculations of the Hungarian statisticians provide a basis for a general economic characterization of the relations and proportions in the national economy. It is interesting to note the following data on the structure of branch outlays for the productive consumption of raw materials, fuel and other materials. (See table shown on the bottom of page 5.) (3)

In the total value of output, outlays for materials amounted to 53% in industry, 54.6% in construction and 37.7% in agriculture. The share of depreciation in the value of output in these branches amounted to 3.1%, 2.4% and 2.0% respectively.

One of the more complex problems arising in the process of drawing up tables of the interrelations of branches is that of clearly distinguishing branches and types of production in such a way as to include, insofar as possible, the more homogeneous branches in the balance sheet. Only if this is done can we feel confident that the interbranch coefficients express the actual production relations arising in the process of the movement of raw materials, fuel, and other materials between these branches.

In this particular case the Hungarian statisticians were faced with great difficulties because in a number of industrial branches of production specialization is not always clearly apparent. For example, 21% of the output of machine-building enterprises is included in the production of other industrial branches; on the other hand 23% of the total output of the machine-building industry is

Branches of Consumption / ranches of Production	Industry	Agriculture	Construction	Transport	Trade	Non-Productive consumption	Capital investment	Increment of stocks	Exports	Total of distributed resources
Industry										
Agriculture										
Construction										
Transport										
Trade										
Depreciation										
Net Product										
Total Output*										
Decrease of stocks										
Imports										
Total available resources										

* In the original table there is no special column for the line "Total output;" for the convenience of computation and in order to make a square table (or matrix, as mathematicians call it), an extra column is introduced, which shows the sum total of non-productive consumption and accumulation.

Structure of Outlays for Productive Consumption of Materials
(In %)

Consuming branches / Cost elements	Industry (excluding handicrafts)	Construction (excluding private building)	Agriculture
Value of industrial materials	67.1	72.0	10.3
Value of agricultural products	23.3	0.4	86.3
Trading charge	2.0	2.7	0.3
Cost of transport	3.0	5.3	0.2

manufactured in plants of other branches not specializing in machine-building.

To clearly distinguish homogeneous branches it is necessary, on the one hand, to collect from the enterprises exact data on the output of the products they specialize in, and on the distribution of the remaining products according to the corresponding branches; and on the other hand, to collect data on the outlays of materials in production for the groups of products turned out by each separate branch. The standard reports of the enterprises do not contain this type of information. So far these data have not been specially collected for balance sheet tabulations. The Hungarian statisticians did not have this type of data either. For that reason they sought to establish the homogeneity of the branches by means of additional computations. Wherever possible, the products corresponding to the specialized output of other branches were singled out from the output of enterprises turning out different types of goods. In some cases it was impossible to establish clear lines of demarcation between branches. For instance, the final results of the industrial activity of trading organizations were classified under the heading of "trade," not of "industry"; some of the building work done by industrial plants was included in industrial production, and so on. It should be noted that transport and communications were presented in the table as a single branch, without distinguishing between the work done to service production and to service the population. In some cases the statisticians working out the balance sheets had to substantially consolidate certain branches in order to achieve some degree of homogeneity. For example, the table of interrelations shows only one position for machine-building although the figures cited above show that full homogeneity is not achieved in this case either.

Productive consumption is evaluated in Hungarian accounts at actual prices, which include the turnover tax (in the Hungarian economy this tax plays a less important part than in the Soviet economy), while trading charges and transport costs appear in separate rows as elements of the product's price.

The Hungarians deal in their own way with the import item in the balance sheet. The data on the distribution of output in the rows of the balance sheet table include not only the domestic output, but also imports of commodities corresponding to the specialty of the given branch. This is done for the purpose of closer approximation to the production coefficients — the standard norms of consumption of raw materials and other materials in the different branches. We can see, however, that the balance sheet table contains a separate row for imports which shows the proportion of the value of imports in the aggregate volume of resources di tributed in the national economy in the given yea Both imports and exports are shown at prices prevailing on the domestic market; this makes i possible to show the total turnover of material values in a single balance sheet.

The Polish Statistical Administration carried a similar project, tabulating the 1957 data on int relations in a pattern forming 35 x 32 positions. The Polish table contains somewhat fewer detail on producing branches than its Hungarian counte part. For instance, it contains only 15 industria branches instead of 32, but the basic elements o the value of the national product by branches ar shown in greater detail.

The conference studied the general problem o the place occupied by balance sheet tables of branch interrelations in the general system of n tional accounts, and their role in economic plan ning. It is characteristic that a number of dele gates (Mateev from Bulgaria and Kotsiolek from the GDR) argued against one-sided overemphasi on these tables, rightly remarking that the latte cannot provide a solution of the general problem arising in national accounts, and that in spite of their importance they are not a substitute for th basic balance sheet patterns developed by Sovie economic theory and practice.

Many delegates dwelt on the problems of utili mathematical methods in computing national ac counts, and some reports dealt exclusively with concrete methods of computing certain indicato These included the report made by Comrade A. Brody (Hungary) on the calculation of indirect c tal outlays; Comrade Ganzer's (Hungary) study interrelations in the fluctuation of prices by me of matrix calculations and electronic computers Comrade O. Lange's (Poland) production and te nical estimates of the effectiveness of capital in vestments.

The Hungarian scientist, Comrade D. Shimon read a paper entitled "Balance Sheet of Branch lations and Indirect Links Between Producing Branches," which described the analysis made the Institute of Economics of the Hungarian Aca emy of Sciences of the data on balance sheet int relations prepared by the Hungarian Statistical Administration. For the sake of saving time th size of the balance sheet was cut by more than half, comprising 18 positions only. In this way was possible, without resorting to electronic co puters, to derive a series of coefficients chara terizing the production relations of the branche by using matrix calculations. First, the technological coefficients representing the relation tween two interdependent branches were

certained. It was thus established that the rela- n between the machine-building industry and rous metallurgy is expressed by the coefficient 99, i.e., in 1957 99 forints worth of iron and el products were required to turn out 1,000 ints worth of gross machine-building output. An portant factor is the so-called coefficient of to- outlays. This shows the outlays of materials ivered directly by ferrous metallurgy to ma- ne-building plants, as well as all outlays of met- for the branches serving the machine-building ustry. In this case the full coefficient equalled 18, which means that the total outlay of metal 1,000 forints worth of machine-building output ounted to 218 forints, and the indirect outlay s equal to 218 - 99 = 119 forints. The calcula- n of total outlays is based on operations with a verse matrix. The analysis of total outlays esents a somewhat different picture of the mate- ls consumed in branches than the data on direct lays. The Hungarian economists hold that these culations can provide a guide in deciding on the anch structure of the national economy, pro- ing that one proceeds from the optimum outlays power and materials per unit of output.

The reports which dealt with the utilization of thematical methods in economic analysis and nning chiefly examined the question of matrix culation as applied to the study of interrelations ong the economic elements emerging one way or ther out of branch interdependence. For in- nce, Comrade Ganzer suggested the use of trixes to ascertain how a price increase in one many interrelated products would affect the pro- ction cost of all the others. The matrix of tech- ogical coefficients in this case, too, plays an portant part inasmuch as the norm of material lays determines the "branch" structure of pro- ction costs. On the basis of Comrade M. Shagy's dy, Comrade Brody proposed the use of matrix culations for determining not only direct, but o indirect capital investments in interrelated anches, his idea being that capital investments one of these branches, machine-building let us , involve supplementary investments in all re- ed branches. It goes without saying that these culations are always made in the process of nning and, by the way, without resorting to the trix method. But when the analysis deals with s (and all the more so when it deals with hun- eds) of branches, and it becomes necessary to mpare a series of variants, the technical ad- ntages of mathematical methods become fully parent.

In his interesting report the Polish economist Comrade Slavin pointed out that matrix calculations play quite an important role for analytical purposes, as well as in verifying and integrating economic planning estimates. However, the balance sheet method continues to play the leading role in all cases. Comrade Slavin holds that linear programming can be a valuable means of coordinating the elements of a plan, but not of selecting an optimum variant on the scale of a national economy. Other delegates also noted that matrix calculations are of little value, even from the technical viewpoint, for selecting an optimum variant. It was pointed out that in some instances formal mathematical analysis tends to replace economic analysis, and that the use of mathematical methods in economic investigations is connected with the propagation of ideas and principles prevailing in bourgeois economic thought. For example, some Polish specialists based their methods of economic calculations on the theory of marginal utility, which nullified the effectiveness of their mathematical devices. Many economists pointed to the necessity of overcoming the influence exercised by this theory on concrete economic investigations. The balance sheet patterns of W. Leontief were also criticized, for they rest on the vulgar economic concept of balance sheet interrelations as a supply and demand system.

Some delegates pointed to other defects in the study of balance sheet problems. Economists have not paid sufficient attention to national economic analysis with respect to the social sectors, and to the balance of interrelations among sectors in the light of the tasks arising in the period of transition from capitalism to socialism.

The conference demonstrated that exchanges of experience can help to improve the methods of national economic planning. A further exchange of opinion and a coordination of scientific research work in the field of national accounting in the socialist countries will be extremely useful.

Footnotes

(1) There were reports by G. M. Sorokin, A. I. Notkin, and T. V. Riabushkin. The problems raised in these reports were covered at the time by our press.

(2) It is somewhat abridged here and the terminology is altered in some cases.

(3) Hungarian statistics combine all these items under the single term "materials," which will be used hereafter for brevity's sake.

Planovoe Khoziaistvo, No. 5, 1

V. NEMCHINOV:

Some Theoretical Questions of Inter-Branch and Inter-Regional Balances of Production and Distribution of Output

The inter-branch and inter-regional balances of production and distribution of output mirror the economic relationships between separate branches of the national economy and regions.

In his brilliant pattern of expanded reproduction, Karl Marx (1863) presented the first theoretical model of economic interrelationships in capitalist society. In investigating these relationships he distinguished two basic departments of social production classified according to their material character (I — production of the means of production, and II — production of articles of consumption) and three basic elements of value of the aggregate social product (constant capital, variable capital and surplus value). Thereby Karl Marx laid the theoretical politico-economic foundations for the study of economic interrelationships in the process of social production.

In his work "Concerning the So-Called Problem of Markets" (1893) V. I. Lenin presented a new variant of the expanded reproduction pattern; this takes account of the influence of technical progress which raises the organic composition of capital. In this work V. I. Lenin elaborated the very important pattern of the realization of the social product and expansion of the market in the process of development of the social division of labor.

The Marxist-Leninist theory of reproduction serves as the basis for an entire system of material and value balances in our country, as well as for reporting and planning balances for the national economy as a whole. The starting point for economic-statistical investigations of inter-branch economic relationships in our country was provided by the first Soviet balances, and primarily by the balance of the national economy of the USSR for 1923-1924 prepared by the Central Statistical Administration of the USSR in 1925. It contained the first inter-branch balance of production and distribution of agricultural and industrial output, and of construction. A chessboard balance was used to illustrate the interrelationships among 14 branches of industry, 4 branches of agriculture and 4 other branches of production. This balance was severely and justifiably criticized at one ti because of the absence of an analysis of the eco nomic connections between town and village, be tween the fundamental class groups which existe during the transition period in Soviet society. Nevertheless, the above-mentioned balance was great value in the development of the first meth dological principles for the national economic b ance, and especially, for the balance of inter- branch relationships.

Extensive theoretical work is being conducte present on the analysis of inter-branch and inte regional balances of production and distributio output. It is now important to sum up the resul of the economic investigations already conducte and to formulate the basic problems arising in process of further development and elaboration the method of analyzing inter-branch and inter- regional balances.

The balance method has also become more o less widespread in the postwar period outside t USSR. The experiments in constructing inter- branch production balances in a number of capi ist countries indicate in the first place that the tension of the concept of relationships to the pc of accounting for all types of transactions betw two or several partners involves a contraction the volume of information included in the balan constructions. This decline itself is due to the lesser homogeneity of the corresponding ties c bined with a broader interpretation of the conc "transaction." The vagueness arising in this p ess must inevitably reduce the volume of avail information in view of the fact that formal acc ing operations of the same type are assigned d ferent meanings. For example, the incorrect classification of objects and implements of lab among "material values" leads to equating two entirely different categories: "material expen tures" and "capital investments." The use of t concept of inter-branch production ties to cover types of relationships based on the exchange o objects of production as well as various non- productive services, leads inevitably to a conf

ween the productive and non-productive spheres, confusion between the process of creating val- and the process of the consumption and redis- ıution of values.

n the first Soviet national economic balance le for 1923-1924 material values were sub- ided into raw materials, fuel, articles of con- ıption and implements of labor. Production re- onships among industries were traced for each hese categories separately. In the form of a ssboard table, with the same branches of indus- shown in the lines and columns, the table illus- ted the mutual exchanges among the industries raw materials, fuel, articles of consumption instruments of labor. Each figure given at the ersection of the corresponding line and column icated the source (i) from which these material ues were transferred and the destination (j) to ch they were transferred.

f no distinction is drawn between objects of la- (intermediate products) and instruments of la- , then in the process of reading each column ere to — where from) the operations connected h material expenditures and capital investments ıld be lumped together. In order to avoid this fusion, bourgeois economists have begun to use y objects of labor (raw materials, fuel, semi- ricated goods and materials) in their chess- rd tables of inter-industry relationships, trans- ring instruments of labor to the columns of the er part of the balance tables to be classed under pital investments" (instruments of labor), and icles of consumption to the columns given un- "consumption of the population" (articles of sumption).

Consequently, instruments of labor were dropped m the inter-branch production balances, with the ult that these balances contain information only ut the composition of the suppliers of capital in- tments but they do not indicate the branches of national economy in which these capital invest- ıts are made. This limited analysis of inter- nch relationships cannot be considered satis- tory where the construction, machine-building, chine-tool and instrument-making industries highly developed. Bourgeois economists have refore had to return to the practices introduced he first national economic balance elaborated he USSR, to single out instruments of labor and struction as elements of the chessboard bal- e of inter-branch production relationships.

Furthermore, a characteristic feature of the npletely closed system of chessboard balances great loss of information with a resulting seri- decline in the analytical possibilities of these ances. A closed system of chessboard balances of inter-branch production relations refers to the kind of balance construction in which corresponding identical headings for lines and columns encompass the whole of the balance table. In the closed chessboard balance table we do not find the outer parts of the balance which contain autonomous lines and columns. In essence, the possibilities of the closed chessboard balance table are limited to control functions of the general balancing of the results. The degrees of freedom of variations in the closed system amount to zero. The matrix for this system has a zero solution (the coefficients of the equations remaining constant).

On the other hand, the greatest analytical possibilities are inherent in the balance which in addition to the internal section containing the corresponding chessboard inter-branch indices, also includes independent external elements with autonomous lines and columns which play the part of vectors in the mathematical treatment of the balance.

Inter-branch balances of production and distribution of output enable us to treat the elements of the balance table not only as corresponding statistical-economic data, but also mathematically as corresponding coefficients of algebraic equations. The presence of information in the lines and columns of the outside sections (in relation to the chessboard part) of the balance table enriches the algebraic equations with free components and the economic matrix of figures of the internal chessboard part of the balance with corresponding vectors. The same role is also played by the lines of the table beyond the balance.

Practice has shown that the balance of inter-branch production relations obtained by placing two rectangular tables crosswise one upon another possesses the greatest analytical possibilities and the greatest volume of information. One of them characterizes the distribution of the social product, with both the productive consumption of objects and instruments of labor (quadrant I) as well as the final product (quadrant II) being singled out, while the second indicates the cost structure of the social product, singling out the material expenditures (quadrant I), the part of the newly created value which is being accumulated and consumed (quadrant III). Table 1 may serve as an example of the fundamental pattern for such a balance table. (See table shown on pages 10 and 11.)

Given this construction, the internal chessboard part of the balance of inter-branch production relations mirrors separately the flow of objects of labor on the one hand, and the flow of instruments of labor (construction work, equipment, etc.) on the other.

Table 1 INTER-BRANCH BALANCE OF PRODUCTION AND DISTRIBUTION

	Quadrants	Production of elements of capital investments				Production of element			
		Agriculture (draft and pedigree stock)	Machine-building	Construction	Total (1-3)	Agriculture	Metal-working	Mining industry	Chemic industr
		1	2	3	4	5	6	7	8
A. Instruments of labor and construction work									
1. Agriculture (draft and pedigree stock)		10	—	—	10	290	—	—	—
2. Machine-building		7	15	—	22	237	31	4	1
3. Construction		6	18	—	24	196	36	5	1
4. TOTAL (1-3)		23	33	—	56	723	67	9	2
B. Objects of labor and articles of consumption									
5. Agriculture		79	30	145	254	2,742	60	23	11
6. Metal-working		—	108	126	234	19	218	2	1
7. Mining industry		—	34	159	193	12	68	233	20
8. Chemical industry	I	—	1	20	21	2	3	7	22
9. Food industry		5	—	8	13	182	—	—	19
10. Textile industry		—	—	1	1	16	—	1	19
11. Other branches		—	3	4	7	—	5	4	1
C. Productive services									
12. Trade		38	63	—	101	1,315	129	125	77
13. Transport		7	12	—	19	232	24	186	23
14. TOTAL (5-13)		129	251	463	843	4,520	507	581	193
15. Stocks at the beginning of year		3	94	—	97	116	190	317	86
16. Imports	III	2	6	—	8	84	16	25	37
17. Amortization		6	5	—	11	207	10	20	9
18. Payment for labor		164	93	95	352	4,027	189	168	21
19. Surplus value		—6	61	296	351	1,466	123	341	96
20. TOTAL (15-19)		169	259	391	819	5,900	528	871	249
20a. Capital investments exceeding amortization		17	28	—	45	516	57	—11	—7
21. Discrepancy		+2	+25	+1	+28	—44	+43	+45	—3
22. All elements of value		300	535	855	1690	10,376	1,078	1,497	439
23. Fixed capital (in million gold rubles)		219	420	—	639	6,600	896	1,974	327
24. Labor expenditures (in thousand man-days)		151	729	12	892	4,759	161	138	17

PUT FOR 1923-1924 (IN MILLIONS OF GOLD RUBLES)

rrent expenditures						Final product						
						Quadrant II						
Textile industry	Other branches	Trade	Transport	Total (5-13)	All current material expenditures	All capital investments	Stocks at end of year	Consumption		Exports	Total (15-19)	Total output (15+20)
								population	state			
10	11	12	13	14	15	15a	16	17	18	19	20	21
—	—	—	—	290	—	300	—	—	—	—	300	300
27	—	2	87	395	—	417	38	80	—	—	535	535
23	1	15	—	289	—	313	—	472	70	—	855	855
50	1	17	87	974	—	1,030	38	552	70	—	1,690	1,690
191	6	1	43	5,304	5,558	—	87	4,333	61	337	4,818	10,376
6	4	32	92	388	622	—	276	104	26	50	456	1,078
27	61	6	148	603	796	—	373	181	83	64	701	1,497
26	4	—	4	79	100	—	104	204	26	5	339	439
35	1	—	1	679	692	—	90	3,765	39	67	3,961	4,653
723	9	37	12	828	829	—	427	1,103	47	6	1,583	2,412
9	51	69	3	162	169	—	88	161	40	1	290	459
335	49	—	—	2,585	2,686	—	—	—	—	—	—	2,686
38	6	—	—	629	648	—	70	—	—	—	70	718
1,390	191	145	303	11,257	12,100	—	1,515	9,851	322	530	12,218	24,318
273	19	—	—	1,097	1,194	—	—	—	—	—	—	—
149	26	—	—	376	384	—	—	—	—	—	—	—
48	7	—	71	493	504	—	—	—	—	—	—	—
367	42	92	379	5,453	5,805	—	—	—	—	—	—	—
183	108	2,309	175	5,453	5,804	—	—	—	—	—	—	—
1,020	202	2,401	625	12,872	13,691	—	—	—	—	—	—	—
2	—6	17	16	481	526	—	—	—		—	—	—
+2	+66	+140	—210	+189	+217	—	—	—		—	—	—
2,412	459	2,686	718	24,318	26,008	—	—	—		—	—	26,008
1,455	—	—	6,050	—	18,752	—	—	—		—	—	—
313	36	22	262	5,850	6,742	—	—	—		—	—	—

For objects of labor the elements along the lines (in the internal chessboard section) indicate the distribution of deliveries of the i objects of labor among the j branches of economy, and along the columns — the composition of material expenditures as the i part of the value of the product in the j branches of economy.

For implements of labor the elements along the lines of the chessboard part of the balance indicate the distribution of the i type of capital investments among the j branches of the economy, and along the columns — the i composition of capital investments in the j branches of the economy.

Capital investments of any branch of the economy are not included in the material expenditures of the given branch, but are covered by amortization deductions and the newly created value. In view of this, the lower outside section of the balance table (quadrant III) should treat separately both the accumulated and consumed (and redistributed) part of the value of the surplus product. The latter magnitude in some cases (in connection with the redistribution of the value) may have not only a positive but also a negative significance. The part of the net income which is being consumed and redistributed is derived in the given case as the difference between the value of the net income of the j branch and the value of the instruments of labor acquired by the given j branch and the value of construction work minus amortization. The accumulated part of the net income will equal the value of the instruments of labor acquired by the given j branch of production and construction work minus amortization.

Inasmuch as the instruments of labor and construction work should not be confused with objects of labor (raw materials, fuel, semi-fabricated goods and materials), the branches which produce both instruments and objects of labor should be shown separately both in the lines and in the columns of the balance table. Furthermore, the branches which produce the instruments of labor and the construction industry should be set apart in separate, independent, upper section of the internal chessboard part of the balance table and thus separated from the chessboard balance of the objects of labor.

There are also some specific features in this section for the righthand part of the outer part of the balance, inasmuch as the column "capital investments" should be treated as an independent position which repeats the result of the inner part of the balance. Here we have a complete analogy with the results of "productive consumption" in the lines which cover objects of labor. Nevertheless, objects of labor which go into the growth of stocks are entered at once in an independent column listed as "stocks." Similarly, indices of the objects of labor which in the very first stages of p duction take the form of articles which are suita for direct consumption by the population (for exa ple — milk, potatoes, etc.) and are not subject t further processing (for making butter, alcohol) a entered in the outer part of the balance table in separate column under "consumption of the popu tion."

All these specific features of balance construc tion are provided for in the fundamental pattern the inter-branch balance of production and distr tion of output. The figures for this table have b taken from the first Soviet national economic ba ance for 1923-1924.

The inter-branch balance of production and di tribution of output consists essentially of two lar rectangular tables. An important element in the table of the distribution of output is represented the columns which characterize the final produc (consumption by the population and by various in stitutions, capital investments, stocks and expo while in the production table a most important e ment constitutes the lines indicating the so-call resource elements of production (newly created value, amortization, stocks and imports).

Resource elements are made up of the gross value of output after the value of the expended o jects of labor (raw materials, fuel, semifabrica and auxiliary materials, electric power) and pr ductive services (maintenance and repair of equ ment, transport and trade) have been covered.

Modern tables of inter-branch balances of pr duction and distribution of output do not as a ru indicate the distribution of productive machine lathes and construction jobs among different spheres of consumption, and their total value is recorded directly in the column headed "capita vestments." Nevertheless, their inter-branch culation should undoubtedly be studied with gre thoroughness and in greater detail than the inte branch relations involving objects of labor and ductive services.

The inter-branch balance has a number of sp cial features of its own. Thus, the totals of the righthand (II) and lower (III) outer sections of t balance table are always equal. Consequently, result of the figures which stand for the "final product" and the "resource elements of produc is the same. This stems from the following prope of the table:

a) the total value of output in each branch is same in the lines and in the columns of the bal table (distribution is equal to output produced);

b) the value of the objects of labor and

luctive services (which together make up the rmediate product) in the horizontal table of distion of products and in the vertical table of outare equal. This is a result of the fact that the rnal chessboard table of the circulation of obs of labor and of productive services constitutes ne same time the general part of both the horial table of the "distribution of production" and ne vertical table of the "output produced."

the sum totals of the figures included in the rnal chessboard table for the circulation of inments of labor and construction work have been sferred to the outer parts of the general table: ne right ("capital investments" column) and bot- (the "amortization" and "accumulated part of income" lines).

ecause of these specific features of preparing balance table as a whole, its general (righthand om part) result is always equal to double the of the "final product" (or, what amounts to the e thing, double the sum of the "resource ele- ts of production") plus the total amount of the cts of labor and productive services plus the lt of the lines or columns included in the right- l bottom part of the table for "redistribution of duction."

he above-mentioned characteristics may be zed for checking the correctness of the corponding results of the table.

iven the above-mentioned construction, interch balances of production and distribution of ut contain in their internal part essentially e basic chessboard inter-branch balances: 1) ruments of labor and construction work; 2) obs of labor; 3) productive services.

ach of these tables has its own internal and r parts (the internal part constitutes the table identically headed lines and columns). Such an rnal part is represented, for example, by the er lefthand part of the table which characterizes circulation of the instruments of labor within sphere of production of the instruments of la-

ables of the inter-branch circulation of instruts of labor, objects of labor and productive ers give an adequately detailed picture of interch production relations. Moreover, with slight ifications in construction this balance can not characterize the inter-branch but also the r-regional circulation of production.

an inter-branch balance of production and distution of output drawn up for one of the economic inistrative regions of the USSR, deliveries and ments were divided among branches of produc- on the one hand, and principal economic areas he other. Moreover, each industry producing both instruments and objects of labor should be treated as two independent branches of production.

Of greatest importance in the inter-regional balance for a specific economic area are the subdivisions "deliveries, according to branches of production" and "shipments, according to regions." In this case, for each branch of production we can compile (on the basis of the table showing shipments from specific economic areas) a general table showing the inter-regional balance of the distribution of output for the country as a whole.

The lines of each general regional table indicate the areas of the origin of production, and the columns — the areas to which the production is shipped. At the intersections of identically headed lines and columns we find the intra-regional consumption of local production (productive consumption, consumption of the population and regional capital investments).

The table of deliveries of output to each economic region gives the inter-branch balance of the productive distribution of output (the lines indicate deliveries for specific branches of production and the columns — productive consumption, including final consumption in the form of consumption by the population, institutions and capital investments). As a result, the consumption of each type of output is subdivided into consumption of local output and of output delivered to the region.

In order that the fundamental pattern of the inter-branch balance of production and distribution of output should meet the requirements of the inter-regional balance, it is enough to divide the line under "deliveries" (imports) into a number of lines (corresponding to the number of industries producing the delivered output). For the same purpose the column "shipment" should be divided into a number of columns corresponding to the number of regions to which local production is shipped.

The balance of deliveries and shipments may be transferred to the auxiliary tables which must be drawn up so as to ensure the internal consistency of the inter-branch and inter-regional balances of production and distribution of output. It is also particularly important in these auxiliary tables to draw a strict distinction between instruments of labor (capital investment elements), objects of labor and articles of consumption (elements of material expenditures and elements of public consumption).

Inter-regional balances of production and distribution of output are also very important from the standpoint of the rational territorial division of social labor, the location of production, and problems connected with an analysis of production specialization and cooperation of economic regions.

A question which arises in the process of preparing inter-branch and inter-regional balances of production and distribution of output is that of the basis for aggregating production (combining it in allied groups). A single enterprise, as a rule, is composed of a number of production units and turns out various products. Inter-branch and inter-regional balances of production and distribution of output should first of all meet the requirements of a balance both in kind and in value terms.

The entire balance of production and distribution of output has at its basis the natural material balances on the one hand, and the estimates of expenditures and calculations of the value of the physical quantities of various articles of production on the other hand. Material balances of specific products of labor furnish the basis for the table of distribution of output in kind, and then in value units for all the most important articles of production in adequate detail. Then, on the basis of reports and planning calculations, production estimates and financial statements, a production table is drawn up in which the elements of value and production costs are singled out. The tables are then placed one upon the other; they are balanced and coordinated. At the same time, separate types of production are combined into branches of production on the basis of so-called aggregation.

Aggregation (combination into groups) should be done with due regard for the need to study inter-branch production connections. Therefore care should be taken not to combine into one group the output of different industrial designations (for example — coking coal with coal used for the production of electricity, food cereals with feed and technical grain, textiles designated for public consumption with textiles from the material supply stocks, housing construction with industrial construction, etc.).

With the object of drawing up a physically homogeneous value balance, care should be taken at first not to lump together in one aggregate unit products of labor which have an identical national economic importance but completely different costs (for example — electricity of the hydro-electric and thermal stations, open pit and mined coal, parts and sections of machines produced by specialized factories and by general non-specialized enterprises).

In order that these limitations on the aggregation of production should not lead to unduly bulky balances, the following two principles of aggregation should be adhered to simultaneously: a) classification, rather than combination, should be used; b) the main, decisive mass of output, embracing 75 or 80% of the total production of the given type, should be singled out, the remainder being aggregated in a less homogeneous unit. For example, open pit and mined deposits may be designated for power producing coal, while this designation is not expedient for coking coal, inasmuch as open pit excavation of coking coal is not widespread to an important extent. Wheat and rye should be inclu entirely in the production of food cereals, althou in the columns of the balance table a part of this grain will be shown as used for seed and feed.

Natural inter-branch balances of the distribut of output should be reckoned in prices correspon ing to each channel of distribution (public consun tion at retail prices, exports at export prices, e

A balance in value terms retains its physical significance. The point is that in the given price each 1,000 rubles of production corresponds to very definite amount of physical units of produc tion, and the figure expressing this amount may taken as a special token unit of measurement. T scale of natural units will then be chosen in reverse proportion to the prices (the lower the pri the greater the number of units in the given sca

When the lines of the value balance are read, definite physical significance can be assigned to each figure, having in mind that for each type of production there are (as if they were specially chosen) corresponding scales of measurement i thousands or millions of rubles (in national currency). Viewed from this aspect the table conne the value balances and the material balances int an integral unit. Knowing the magnitude which i the reverse of the price (the number of units of put in a value of 1,000 rubles), it is always easy represent any element of the balance which is e pressed in money (value) terms in corresponding physical units of measurement.

***

The inter-branch balance of production and di tribution of output does not fully meet the requi ments of Karl Marx's model of expanded reproc tion. This model provides for the division of so production according to its material nature into basic subdivisions. However, the inter-branch ance of production and distribution of output can easily be converted into Marx's model of repro tion. For this purpose the entire so-called fina product (and its component parts) must be subdivided into the basic elements of value.

We have calculated the material and value str ture of the gross social product by transformin the inter-branch balance of production and distr tion of output for the whole of the USSR in 1923-1924 into a reproduction balance. (See Table 2 shown on p. 15.)

Karl Marx considered one of the most import characteristics of the process of reproduction

Reproduction Balance of the USSR for 1923-1924
(In millions of gold rubles)

Table 2

Material structure of production \ Value Structure	Material expenditures (C)	Payment for labor (V)	Net income (m)	Gross income (V + m)	Social product (P)
Instruments of labor	998	350	342	692	1690
Objects of labor	6352	3390	3368	6758	13110
Means of production — total	7350	3740	3710	7450	14800
Articles of consumption	7040	2065	2095	4160	11200
Social product — total	14390	5805	5805	11610	26000

relationship between the income realized in the ere of the production of means of production + m_1) and the material expenditures in the ere of production of articles of consumption (C_2). se magnitudes are equal in the case of simple roduction ($C_2 = V_1 + m_1$), whereas in expanded roduction $V_1 + m_1$ exceeds C_2. V. I. Lenin em-sized that the relationship between these magni-es will also retain its significance under com-nism.

he difference between these magnitudes may be ed the potential of expanded reproduction (M). t being the case, we have $V_1 + m_1 = C_2 = M$. or the USSR in 1923-1924 this potential was 7450 - 7040 = 410, which means that it unted to no more than 1.6% of the gross social duct and 3.5% of the national income. Conse-ntly it was a very insignificant magnitude at time.

urthermore, the expanded reproduction balance bles us to determine such important indices as relationship between departments I and II of ial production, the organic composition of ex-ditures on production ($\frac{C}{V}$), the rate of the surplus duct ($\frac{m}{V}$) and some other very important national nomic indices. The inter-branch and inter-onal balances of production and distribution of ut may be used as a basis for solving a number xtreme problems and choosing the optimum ants of the balance. For example, this balance serve as a mathematical model for deter-ing (for the given technological conditions and urces) the maximum possible physical volume he final (or net) product or the consumption fund, ming optimum expenditures of socially neces-labor. Problems of this kind may be solved directly by comparing a number of variants of the balance and then selecting the optimum variant which meets certain given conditions. However, it is preferable to solve them in general form by using mathematical methods of linear and dynamic programming. In the latter case it is necessary to identify the limiting conditions, and the conditions of the problem are expressed in the form of corresponding equations and inequalities.

It requires a great deal of painstaking labor to prepare a number of possible variants of a balance table. However, it is impossible to guarantee that the optimum variant is not among the possible variants which were not drawn up for one reason or another. It is always necessary therefore to rely on general methods of programming, especially if it is a question of using modern mathematical and electronic computers.

However, the types of problems encountered in the choice of the optimum variant of the balance of production and distribution of output may best be illustrated by preparing several variants of the balance and selecting the optimum variant from among them.

Let us assume that we have several variants of consumption by the population which differ in the composition and volume of food consumption (various norms for the consumption of bread, potatoes, meat, milk, sugar, fats, etc.), manufactured goods (various norms for the consumption of cotton, woolen, silk, linen and rayon fabrics), and in the supply of durable goods (housing, refrigerators, washing machines, TV sets, automobiles, watches, etc.). Each of these aggregate units will have a corresponding gross social product. By finding the latter we can calculate the corresponding labor,

capital and electric power requirements, or the cost of production for each of these aggregate units of consumption. We can then choose the variants which are most suitable for the given conditions (those which involve minimum expenditures of labor, capital or electric power).

Calculations may be based not only on actual balance coefficients which mirror the technological conditions of production (norms of expenditure of raw materials, fuel, electric power and labor, norms for capital requirements, capital investments); they may also be based on corrected technical coefficients which take into account technical progress.

A similar approach may be used in examining different variants of the gross social product which differ in volume and structure of the entire final product or in the volume and composition of exports, capital investments, national income, etc.

In order to choose the optimum variant it is necessary to take into account the limits of available resources, for example — productive capacity (or capital), electric power, feed stocks, etc. The whole problem is subordinated in this case to certain optimum conditions, for example — the minimum expenditures of working time, the maximum economic effectiveness of fixed capital, etc.

On the other hand, the problem of selecting the optimum variant of the balance may be set up differently, taking the technology of production rather than the final product as the starting point. In that case the point of departure of the corresponding balance calculations will be the internal chessboard section of the balance table (characterizing the norms of expenditure of objects of labor, capital investments in instruments of labor and construction work, and imports), as well as the corresponding lines outside the balance (labor resources, fixed and circulating capital, electric power and raw material resources).

In this case, provisions are made for several differing technological methods of production for the most important branches of production in the columns and lines of the balance table. For example, in the production of fuel coal distinctions are made between the different coal basins and methods of extraction (mining, open pit excavation, the hydraulic method); in the production of electric power we distinguish between thermal stations (depending upon the type of fuel and capacities) and different types of hydroelectric stations; in the production of wheat (in the most typical regions) we distinguish between the virgin areas, non-black soil wooded zone, winter wheat regions; in the production of instruments, non-ferrous metals a castings we distinguish between specialized and non-specialized plants; in the production of pig iron — between the Southern, Urals, and Eastern mills.

Different technological methods of production vary in the structure and magnitude of productio costs, labor requirements, labor productivity, capital requirements, transportation and trade e penditures.

For the final product of a given volume and structure it is possible to pose and solve the pro lem of determining in each given branch of prod tion the optimum variant of combining various te nological methods (determining the extent to whi each may be used). The point of departure shou be the limits of resources for each of the techno logical methods and the optimum conditions (for example — the minimum labor requirements and capital investments).

Given annual inter-branch balances of produc- tion and distribution of output for several years succession, it is possible to compare annual changes in the productivity of social labor as we as social production costs (relative to the actua dynamics of prices). This series of annual bal- ances should make it possible to analyze the eco nomic effectiveness of capital investments by co paring them with the subsequent annual producti increases.

With a series of annual inter-branch and inter regional balances of production and distribution output it is possible to pose and solve the probl of their coordination. This is necessary in orde to characterize the dynamics of the national eco omy as an integral whole which develops organi cally in time. In this case it is most important take account of the time factor, the importance which is by no means limited to cases of backw ness of some elements of social production. A most important factor in the dynamics of social production is the structure of social production the initial period and the subsequent changes in this structure, for example — changes in the po tial of expanded reproduction in comparison wit actual capital investments.

Preparation of a series of annual inter-branc balances of production and distribution of outpu (for the USSR as a whole and for separate econ regions) may serve as the basis for the constru tion of corresponding dynamic models of the de velopment of the national economy and for an analysis of the dynamics of basic national econ proportions.

Planovoe Khoziaistvo, No. 5, 1960

BERRI AND A. EFIMOV:

ethods of Preparing an Inter-Branch Balance

he method of balances plays a very important in national economic planning. In the process reparing long-range and annual plans by means ne method of balances the necessary propor- s in the development of the different branches ne national economy are established and correct tionships between production and consumption determined.

most important part in determining national nomic proportions is played by the national eco- ic balance worked out in our country. It re- ts the fundamental economic proportions, for mple — the relationships between consumption accumulation, between industry and agricul- , between the production of the means of pro- ion and the production of articles of consump- . These proportions determine the economic cture of production and characterize the most ortant aspects of expanded socialist reproduc- . However, the national economic balance does disclose concretely the whole of the complex em of inter-branch connections inasmuch as it ased chiefly on the major branches of the econ- . But the coordination of numerous branches of luction which supply a wide range of items is ential for the purpose of planning national eco- ic development. Nor are the economic rela- ships in social production fully reflected in the erial balances which play an important part in onal economic planning. These balances mirror ial inter-branch relationships and indicate the urces and distribution of each given type of luct, the relationships between their output and sumption.

onstant changes in and enrichment of the com- tion of material production and an expansion e composition of the non-material branches of luction confront us with increasingly complex lems in coordinating plans for specific ches of production and require new methods ways of establishing the proportions between uction and consumption of all types of prod- , semi-finished items and raw materials. The ediate task before us is to prepare a balance h would concretize definite sections of the na- l economic balance and would also generalize synthesize individual material balances. This role can be performed by the inter-branch balance of production and distribution of output in which the process of social reproduction is concretized for separate branches of industry and agriculture, and also for specific products.

On the initiative of the Gosplan of the USSR work has begun on the preparation of a general balance table of inter-branch relations in 1959. This important work was preceded by special investigations conducted at the Economic Research Institute of Gosplan on the basis of materials for 1955 and 1957. Experimental calculations supplied the foundation for the basic methodological principles underlying the final inter-branch (chessboard) balance table. Subsequently, the Central Statistical Administration of the USSR, together with the Economic Research Institute of Gosplan, prepared instructions on practical methods which were adopted as a basis for conducting this work.

Preparation of the final inter-branch balance table of production and distribution of output is a new and complex task which requires a great deal of work on the part of economists and statisticians. In order to carry out this work the Central Statistical Administration of the USSR has arranged sample studies covering approximately 20% of all industrial enterprises and construction sites. The results of these investigations should furnish data on the structure of production expenditures on various types of output and on inter-branch relationships of all branches of industry and construction.

1. The Pattern and Essence of an Inter-Branch Balance

The pattern of an inter-branch balance of production and distribution of output is based on the principles of the Marxist theory of expanded socialist reproduction. This is expressed primarily in the fact that in the structure of expenditures for each given branch of production or for each product the fundamental elements of value are distinguished. At the same time it shows for each branch of production the distribution of its output into the replacement, accumulation and consumption funds. Consequently, it gives the value and material structure for every branch of production.

Inasmuch as the reproduction of the social product takes place in the form of value and in the form of material relationships, it is evident that the pattern of the inter-branch balance should cover both aspects of this process: value and natural composition in their interconnection. Therefore, while studying relationships between branches of production in value terms, it is also necessary to study the relationships between the output of specific products in their natural expression.

As a matter of principle the balance of inter-branch relations should be given in material and in value form in a single table of inter-branch relations. In practice, however, the preparation of this combined table of inter-branch relations is accompanied by great difficulties. It is, therefore, expedient to prepare two balance tables, each of which has a specific purpose and independent significance.

Accordingly, it is necessary to distinguish between two types of balances: the inter-branch balance in value (cost) form and the inter-branch balance in its natural form. The inter-branch b ance of production and distribution of output expressed in value form is a concretization of the balance of the social product, while the inter-branch balance expressed in physical terms is a synthesis of partial material balances.

Expressed in the terms of value, the inter-branch balance of production and distribution of put reflects commodity-money relations betwee branches of production. With this balance it is sible to analyze all relationships and proportion between branches of the national economy. In so cialist production the balance reflects the real r lationships between one branch of the economy a another. These are not the "expert" estimates trading activity which are often used by bourgeo economists in compiling tables of inter-branch lations.

Below we present a model inter-branch balanc of production and distribution of output in money terms (Table 1).

Table 1

Model of an Inter-Branch Balance of Production and Distribution of the Social Product in Money Terms

Branches of material production	Replacement fund (for given list of branches)							National income														TOTAL
						etc.	total	accumulation fund			consumption fund							balance of exports and imports					
								increases in fixed capital			increase in circulating capital	personal	public									
								productive	non-productive				health care	etc.	total							
I. Industry																						
Iron ores																						
Iron and steel																						
Coal mining industry																						
Electric and heat power																						
Power machinery																						
Transport machinery																						
Basic chemistry																						
Synthetic fibers																						
Sawmills																						
Paper mills																						
Building materials																						
Textile industry																						
Garment industry																						
Sugar industry																						
Flour mills																						
Other industries																						
II. Construction																						
III. Agriculture																						
a) field husbandry																						
b) livestock breeding																						
IV. Transport																						
V. Communications																						
VI. Trade and public catering services																						
VII. Procurements																						
VIII. Material and technical supplies and sales																						
IX. Other branches of material production																						
Total material expenditures (excluding amortization)																						
Amortization of equipment																						
Amortization of buildings and other structures																						
Total material expenditures																						
Wages and other forms of initial income																						
Profits																						
Turnover tax																						
Net incomes of collective farms and cooperatives																						
Other elements of net income																						
TOTAL																						

Section I — Section II — Section III — Section IV

In the first section the model reflects inter-branch relationships in the output of the social product. The vertical columns show the expenditures of the means of production used in the production of one or another product, while as a whole this section shows the totality of the means of production used in the production of the aggregate output for the given year. The horizontal lines reflect the distribution of output used for replacing the consumed means of production. Thus, the "mining industry" line shows the distribution of among all the branches of material production.

It is evident that the horizontal lines which reflect the distribution of production of specific

nches designated for current productive con-
nption in other branches, and the vertical col-
ns which characterize the expenditure of means
production on the output supplied by these bran-
s, are not balanced within the limits of the first
tion. (This is most evident in the case of the
put of the food and other industries which is
gely designated for individual and social consump-
n.) Adding up the vertical indices we derive the
ume of material expenditures on the output of the
ial product, or the value of the consumed means
production. Adding up the horizontal lines we
ive the volume of the means of production which
uld be separated from the social product as a
rce for the replacement of the means of produc-
n used up in the process of production. Thus the
st section reflects the process of simple repro-
tion of the means of production. This section
lects not only the expenditures of objects of la-
, material expenditures, but also the transporta-
n services, communications and other branches
material production.

n the inter-branch balance in value terms we
l in the lefthand and upper part of the table so-
led "pure" branches (as branches which supply
ntical production). As a consequence of this
roach the indices of the first section of the inter-
nch balance give a more accurate characteriza-
n of the production relationships of the corres-
ding branches. However, because of the specific
anizational structure of the enterprises and of
gross production index, in some cases there
y be distortions in the nature of the inter-branch
ationships. Thus, the relationships of a steel
l will appear differently. If the enterprise has
ore resources of its own the expenditures of this
l will include expenditures on ore; when this
rce is available these expenditures will not be
sent, but the table will show expenditures on ex-
sives, wages, etc. This difference in the com-
ition of expenditures reflects a real difference
he nature of commodity-money relations. In the
st instance the mill is receiving ore from else-
re, in the second — it is mining this ore on its
. In this case it is impossible to determine
t part of the value of the metal is made up of the
ue of the ore, wages, etc. Entirely different an-
rs to this question will be given by enterprises
ending upon their organizational structure.
is therefore necessary to indicate in the first
tion of the inter-branch balance in money terms
only the commodity relations, but to also try to
in indices characterizing technical production
tions between the branches. In other words,
gross turnover must be shown along with gross
duction in order to illustrate the relationships.

If these indices of technical production relationships in the monetary balance cannot be correctly presented (even as approximations), the balance will lose its value for planning to a certain degree. This fact should be taken into account when the final balance is drawn up for 1959.

In the second section of the inter-branch balance of production and distribution of output an analysis is made of the utilization of national income for accumulation and consumption. Consequently, both the first and the second sections (horizontally) show the utilization of the social product for replacing the consumed means of production, for accumulation and consumption.

In the third section the balance reflects the national income as the sum of the newly created value in the given year, which is derived in practice by adding up the elements of net output in all the branches of material production. Such indices as wages, profits, turnover tax, net income of collective farms and cooperatives are also included here. This section shows the proportion of the national income contributed by different branches of production (for example — by the coal mining industry, iron and steel, etc.). It follows that the results of the first and third sections (vertical) reflect all the expenditures of past and living labor, i.e., the formation of the value of the aggregate social product, while each column reflects the social expenditures on the output of a given sector of production.

As for the fourth section, it reflects certain processes of the redistribution of the national income.

In the inter-branch balance table in money terms the results of the first and third sections for each column (at bottom) and the results of the first and second sections for the corresponding lines (on the right) should exactly coincide. Theoretically, the sum totals of the second and third sections of the inter-branch balance characterizing the magnitude of the national income created and used should also coincide. Naturally, this equality will not occur in separate columns and lines within the limits of the second and third sections.

A most complex question is that of the amortization of fixed capital the value of which, as we know, is transferred gradually to the finished product in the process of production. Theoretically, the replacement of the wear and tear of fixed capital should be included in the first section because it belongs to material expenditures. In the first section it would be appropriate to show what part of equipment, spare parts, construction work, etc., was used for replacing the worn out fixed capital and the branches from which the corresponding

material resources had come. However, such data in value terms may not coincide with the calculated amortization. Moreover, this is difficult to do on the basis of the reported data. Available figures on amortization in money terms cannot be shown in the first section and therefore they are entered after the total material expenditures.

For the purpose of drawing up an inter-branch balance in money terms, branches of production are distinguished on the basis of the currently existing classification of branches (according to quarterly reports). In the inter-branch balance table in money terms material production is represented by 65 branches of industry, two branches of agriculture, transport, construction, communications, trade, material-technical supply, procurements and other branches. (1)

The model of the balance of inter-branch relations expressed in physical terms has a differen form. It is made up of three sections, the first indicating the resources of production according their sources of derivation, the second — the co sumption of these products in production, and th third — their distribution for the replenishment fixed and circulating capital, non-productive con sumption and exports. In physical terms the tab therefore constitutes a system of interconnected material balances which mirror expenditures on the output of each product.

Below we give a model of an inter-branch balance expressed in physical terms (Table 2).

Table 2

Model of an Inter-Branch Balance in Physical Terms

Products (according to accepted nomenclature)	Units	Resources				Distribution											
						For production						For Replenishment		Consumption (non-produc.)			
		Production	Imports	Other Receipts	all resources	iron ore	manganese ore	pig iron	bauxite	etc.	expenditure on other products	fixed capital	circulating capital	total		exports	total distributed
Iron ore	tons	Section I				Section II						Section III					
Manganese ore	"																
Pig iron	"																
Bauxite	"																
Aluminum, primary	"																
Coal, coal concentrates	"																
Natural gas	thous. cubic meters																
Electric power	kwh.																
Steam turbines	thous. kw.																
Metal-cutting lathes	number																
	(mil. rubles)																
Bulldozers (all types)	number																
Trucks	"																
Harvester combines	"																
Caustic soda 92%	tons																
Synthetic fiber	"																
Mineral fertilizers	"																
Sawn timber	cu. meters																
Paper	tons																
Bricks	thous.																
Coarse cotton fabrics	sq. meters																
Garments (all types)	thous. rubles																
Meat and by-products	tons																
Granulated sugar (total)	"																
Flour	"																
Whole milk	"																

Lists of industrial products included in the forms for the national economic plan of the USSR in 1959-1965 were used to determine the nomenclature of the balance in physical terms. Types of products characterized by a mass scale of output, great consumption of materials and, as a rule, universal use, were singled out in these lists. The nomenclature also includes types of products the expenditure of which is organically connected with the output of those major products which were singled out, and without which it is impossible to obtain in the inter-branch relationships table a chain of technologically conditioned material expenditures on the output of specific products. On the basis of this principl the nomenclature has been extended to include, example, ores for the production of steel and n ferrous metals, some chemicals which serve a raw materials and semi-fabricated materials f the basic types of production in the chemical in dustry, etc. Altogether, the model of the balan in physical terms covers about 180 types of produ

In the inter-branch balance in physical terms expenditure of one or another product per unit the given product will be indicated independentl whether it has been produced at the given enter prise or obtained elsewhere.

Methods of Determining Coefficients of Direct and Full Expenditures

n its elementary form the quantitative magnitude he interrelation of one branch of the economy h another is expressed by the product $a\underline{x}$, where enotes the coefficient recording the amount of duction in one branch required per unit of pro- tion in another branch (for example, the amount conventional fuel required for the output of 1 kwh. electric power), and $\underline{x}$ — the volume of output ch must be produced by the consuming industry example, the number of kwh. of electric power e produced by the power stations). Expendi- es of the output of one branch for producing a t of output in another branch are called direct ex- ditures. In general form this coefficient is ex- ssed by the mathematical symbol $A_{\underline{i}\underline{k}}$, $\underline{i}$ denoting producing branch and $\underline{k}$ the consuming branch. he coefficient of direct expenditures for each en level of technical development and production anization is a definite magnitude. The calcula- n of the expenditures of output of one branch on production of a unit of output in another branch n important stage in the preparation of the inter- nch balance table, especially in filling in its first tion.

n the table of inter-branch relationships the fficient of direct expenditures denotes the aver- expenditures for the branch as a whole. Its rage degree depends upon the nomenclature of branches or products adopted as the basis of given inter-branch balance, as well as upon the le of aggregation (grouping) of branches and ducts. For example, the indices of the expendi- e of rolled metal per light automobile or per omobile in general represent different degrees verages for the coefficient of direct expendi- es.

most important problem in classifying branches he inter-branch balance is that of finding the imum grouping, because the degree of unification differentiation of branches determines the de- e of aggregation of the balance indices. To the ent that branches are differentiated the balance rds greater possibilities for the concrete ex- ssion (in coefficients of direct expenditures) of uctural and technical changes in social produc- which are planned for a given period and which rt decisive influence on the real inter-branch ationships. At the same time, excessive differ- iation of branches of production creates great iculties in the compilation of inter-branch bal- es, in finding starting points for calculating their ces. It is, therefore, urgently necessary for ntific and practical workers to elaborate principles which could serve as the basis for the classification of branches in the inter-branch balance of production and distribution of output. A most important principle in grouping branches and sectors of production is the homogeneity of their expenditures.

Average indices of direct expenditures of products of one branch per unit of output of another branch may be obtained in two ways: either through statistical processing of the data for all the enterprises in a given branch of the national economy (or on the basis of representative samples of specific enterprises), or in an analytical manner on the basis of a thorough technical and economic analysis of the intra-branch structure of expenditures for separate types of enterprises, taking due account of technical progress. The first method is used for compiling balances for previously reported data and the second may be used in the preparation of a planned balance.

The existing procedure for reporting by enterprises on the composition of expenditures does not afford the possibility of obtaining through statistical processing the coefficients of direct expenditures in accordance with the nomenclature of the inter-branch balance. Summary calculations may be used for compiling the vertical columns of the balance table only for certain branches of production (sugar refining and the distilling industry), but the figures are not perfect for these branches of production. On the whole the calculations are not up to requirements for the compilation of a table of inter-branch relationships. This is explained by the following:

a) calculations are not made for all the products;

b) in many branches of production calculations are made for separate stages of processing, and because of this it is not always possible to determine the expenditures of initial raw materials and other materials per unit of finished product;

c) some of the expenditures are included in the calculations in combination and it is very difficult to interpret them;

d) calculations indicate expenditures of the basic materials only (let us say, the expenditure of metal on the production of machinery), but the expenditure of numerous auxiliary materials are given without any differentiation. And yet auxiliary materials of one industry become the basic materials in another.

In the table of inter-branch relationships the expenditures of all the resources included in the nomenclature should be clearly distinguished.

The statistics on material and technical supply do not permit us to determine the coefficients of

direct expenditures for each type of production for the whole nomenclature of the balance. The reports indicate expenditures of the most important types of fuel and materials only. These expenditures are shown for the enterprise as a whole although many enterprises turn out several types of products included in the nomenclature of the balance. Statistics on norms cover only a small range of norms and they, too, are not up to the requirements of the inter-branch balance.

Unfortunately, therefore, existing statistics do not afford the possibility of determining the coefficients of direct expenditures for all branches and products in the balance. All this has created the need for a special survey of industrial enterprises and construction sites in order to study the composition of expenditures in specific branches and products.

These investigations should produce coefficients for various kinds of direct expenditures. First, information will be received on the expenditure of production in all the branches included in the balance nomenclature in money terms per ruble of output in these branches. Second, information will be received on the expenditure of all types of production per unit of output in physical terms.

Along with the determination of branch coefficients of direct expenditures, planning prac tice dictates the need for elaborating intra-bran coefficients of direct expenditures characterizin the relationships between separate types of pro- duction within the branch. The determination of these coefficients should make it possible to use modern electronic calculating machines for pro calculation of proportions in the growth of differ sectors of production within a given branch and should furnish the basis for calculating branch coefficients.

Elaboration of branch and intra-branch coeffi- cients of direct expenditures should be made wit due regard for the specific features of individua industries. For example, in the chemical indust in order to calculate the coefficient of direct expen tures it is necessary to take account of the entir variety of technological processes and initial ra materials used in the production of similar prod ucts.

Below we give the results of calculations of th coefficients of direct expenditures on the produc tion of phosphate fertilizers evaluated in 18.7% P_2O_5 (anhydride of phosphorus), and this examp shows only the expenditures of electric power, c and petroleum products per ton of each type of phosphate fertilizers (2) (see Table 3).

Table 3

Expenditures on the Production of Phosphate Fertilizers in Terms of 18.7% P_2O_5

	Units	Total expenditures (weighted average expenditures	Including: plain superphosphates from apatite concentrates	granulated superphosphates from apatite concentrates	ammonated superphosphates from milled Kara-Tau phosphorite	superphosphate from milled Kara-Tau phosphorite	superphosphate granulated from milled Kara-Tau phosphorite	defluorated phosphates
Composition of marketable production (1957)	% / %	100 / 100	60.1 / 54.9	22.5 / 27.5	0.4 / 0.8	11.0 / 9.7	4.2 / 5.4	1.8 / 1.7
Electric power (from outside)* per ton	kwh. / rubles	33 / 4-95	28.8 / 4-15	42.5 / 4-82	77.5 / 21-70	38.2 / 10-50	- / -	83.0 / 10-05
Coal (in terms of conventional fuel) per ton	kg. / rubles	39.0 / 4-40	22.2 / 2-18	69 / 7-80	21 / 3-84	39.5 / 3-85	129 / 14-00	8.70 / 0-7
Petroleum products per ton	kg. / rubles	7.65 / 1-93	3.85 / 1-34	6.58 / 2-41	4.25 / 1-47	2.46 / 0-84	4.3 / 1-54	187. / 26-.

* The amount of electric power produced within the factories is insignificant in this industry

The top line shows the relative shares of all es of phosphate fertilizers in their total output physical output terms in the numerator and ue terms in the denominator). On the basis of se relative shares it was possible to calculate weighted average expenditures of electric pow- coal and petroleum products per ton of phosphate tilizers evaluated in 18.7% P_2O_5. Thus, 1 ton of in superphosphates requires 22.2 kg. of conven- nal fuel valued at 2 rubles 18 kopeks. Similar culations have been made for the entire nomenclature of material expenditures, for amortization, wages and profits.

The above-mentioned average expenditures for each type of phosphate fertilizers are calculated on the basis of expenditures determined for the output of intermediate products and for principal stages of processing. Thus, expenditures on the production of superphosphates granulated from apatite concentrates are shown in a detailed table drawn up in the same way as the preceding one, as follows:

***

Table 4

Indices	Units	Superphosphates granulated from apatite concentrates			
		sulphuric acid 100%	superphosphates plain, minus the cost of expended sulphuric acid	processing of plain into granulated superphosphates	total expenditures
Electric power per ton	kwh. / rubles	70.5 / 7-50	2.52 / 0-27	14.0 / 1-51	42.5 / 4-82
Coal (in terms of conventional fuel) per ton	kg. / rubles	40.8 / 4-05	9.16 / 0-86	41.5 / 6-05	69 / 7-80
Petroleum products per ton	kg. / rubles	2.8 / 1-00	2.8 / 1-00	2.8 / 1-00	58 / 2-41

This treatment of expenditures has made it pos- le to single out the expenditures of resources the output of an intermediate product (sulphuric d) and on certain stages of processing, and also to e account of the coefficient of the expenditure of phuric acid on the output of one ton of super- sphates and to determine the total expenditures one ton of finished output.

t is obvious that these auxiliary calculations are alue not only for planning in the chemical indus- but also in any other industry with a complex ucture of production. They afford the possibility letermining average expenditures on the produc- of a definite kind of output necessary for com- ng a table for inter-branch relationships.

To illustrate intra-branch calculations of coeffi- nts of direct expenditures we present data for aluminum industry (3) (see Table 5 on page 24 Table 6 on page 25).

These tables clearly illustrate the inter-branch tionships of the aluminum industry. The data hese tables also furnish the basis for finding coefficient of the intra-branch relationships. s, the expenditure of electric power per of aluminum, which is equal to 20,042 kwh., was found on the basis of the following calculations. The output of a ton of aluminum requires the expenditure of 18,950 kwh. of electric power directly on electrolysis, whereupon 889 kwh. is spent indirectly through alumina (1.959 tons of alumina are spent on a ton of aluminum, and 454 kwh. of electricity on a ton of alumina, the total amounting to 1.959 x 454 = 889 kwh.), 16 kwh. (408 x 0.040) through fresh cryolite, etc. Consequently, when intra-branch relationships are taken into account the coefficient of electric power expenditure equals 20,000 kwh. However, the production of aluminum requires in addition to electric power many other material resources which come from other industries, in particular — chemicals, fuel, etc., for the production of which electric power is also required. Consequently, at the national economic level what is required for the production of one ton of aluminum is not 20,000 kwh. of electric power, but considerably more (approximately 20% more according to experimental calculations).

For the purpose of economic planning it is not enough to know only the direct expenditures which directly reflect the relationships between one branch of production and another. It is also

Table 5

Expenditures of Raw Materials and Semi-Finished Products Per Ton of Aluminum

	Required for production of a ton of aluminum	Including materials brought in from outside	Suppliers
Alumina	1959 kg.	—	—
Fresh cryolite	40 kg.	—	—
Flotation cryolite	28 kg.	—	—
Anode mass	551 kg.	—	—
Bauxite	4720 kg.	—	—
Nepheline concentrates	310 kg.	310 kg.	Chemical industry
Limestone	1370 kg.	—	—
Calcinated soda	177 kg.	177 kg.	Chemical industry
Caustic soda	94 kg.	94 kg.	Chemical industry
Sulphuric acid	133 kg.	36 kg.	Chemical industry
Pyrite	83 kg.	83 kg.	Copper industry
Fluorite	197 kg.	—	—
Baked coke and oil coke	463 kg.	463 kg.	Coke and chemical, and oil industries
Pitch	182 kg.	182 kg.	Coke and chemical industry
Props	0.38 cubic meters	0.38 cubic meters	Timber industry
Electric power	20,042 kwh.	19,382 kwh.	Power production system
Steam	9.87 megacalories	8.08 megacalories	Power production system
Conventional fuel	1.82 tons	1.40 tons	Coal mining industry
		0.42 tons	Oil industry

necessary to have a clear idea of the entire complex system of indirect expenditures. Thus, if it should be necessary to raise the final output of aluminum by 100,000 tons, the plan should reflect changes in the volume of production not only in the industries which are directly connected with the aluminum industry, but also in those which are indirectly connected with it. It is obvious that the need for additional electric power capactity (and the corresponding capital investments) should be determined with due regard for all the indirect expenditures of electric power in different branches of the national economy.

It should be noted that on the whole the system of material balances which is used at present also reflects, of course, indirect expenditures inasm as they appear as direct expenditures on the ou put of another product. In particular, the need electric power in the production of chemicals u in the aluminum industry will be reflected in th corresponding balance. Nevertheless, in the sy tem of partial material balances it is difficult practically impossible to distinguish all the lin connected with the given concrete product.

An important feature of the inter-branch bal which is of essential importance in planning is the coefficients of direct expenditures may be transformed, by using the matrix method and e tronic calculating machines, into coefficients o full expenditures which characterize the

Table 6

Expenditure of Electric Power Per Ton of Aluminum

	Expenditure of electric power per ton of materials (kwh.)	Expenditure of materials per ton of aluminum (tons)	Expenditure of electric power with account of coefficients of expenditure of materials per ton of aluminum (kwh.)
Aluminum	18,950	—	18,950
Alumina	454	1.959	889
Fresh cryolite	408	0.040	16
Flotation cryolite	212	0.028	6
Fluoric aluminum	439	0.025	11
Anode mass	44	0.551	23
Bauxite	27	4.65	120
Limestone	16	1.35	21
			20,042

penditure of one product on another throughout national economy, throughout the whole chain of erconnected branches of production.

n the table of inter-branch relationships and in system of algebraic equations which connect the il volume of production in the i branch X_1 with total flow of this output directed to other nches $a_{ik}X_k$ (k = 1, 2 ... n, where n denotes the nber of branches) and with ultimate consumption lies the corresponding table (matrix) of all the fficients of direct expenditures a_{ik}. By solving s system of equations we obtain a table (matrix) h a new content, the matrix of the full expendi- e coefficients A_{ik}. This is what we call the verse matrix" in relation to the original matrix oefficients in the system of equations. The duct (obtained through methods of higher alge-) of the matrix of full expenditure coefficients the vector (column) of output designated for umulation and consumption (which we treat as en), gives us the vector (column) for the volumes roduction. This determines the economic na- e of the full expenditure coefficients which cover whole productive consumption of the country, direct and indirect expenditures of various re- rces. Full expenditure coefficients may be ived first of all for objects of labor.

ull expenditure coefficients are undoubtedly of at practical value for industrial planning esti- es and adjustments. They afford the possibility apidly determining through the chain of inter- nections, the meaning of a particular change in volume of production in a given branch, for the onal economy as a whole.

A table of full coefficients was prepared at the Economic Research Institute of Gosplan of the USSR on the basis of an experimental inter-branch balance in physical terms for 1957 covering 24 products and branches of industry.

We present a table in which some coefficients of direct and full expenditures are compared (see Table 7 on p. 26).

Naturally, a table of inter-branch relationships which covers only 24 branches of production does not allow us to trace the real relationships between the coefficients of direct and full expenditures. The full expenditures given in the table have been calculated without taking account of expenditures in such major branches of material production as agriculture and transport. (4) It is clear that if the table had a greater coverage the gap between direct and full coefficients would have been even more substantial. However, inasmuch as the table included the most important types of industrial production, and in particular the output of heavy industry, there is a certain interest attached to the coefficients obtained for full expenditures. The preparation of an experimental inter-branch balance and a table of full expenditure coefficients has made it possible to undertake the compilation of a summary balance for an extensive nomenclature on the basis of the methods evolved.

3. The Role of an Inter-Branch Balance in the Solution of Planning and Economic Problems

The summary inter-branch balance of production and distribution of output affords the possibility of

Table 7

Relationship between Direct and Full Expenditures
(1957 data, tables 24 x 24)

	Units	Direct expenditures	Full expenditures
Expenditures of conventional fuel on:			
Electric power	kg. per kwh.	0.432	0.525
Rolled steel*	kg. per kg.	2.652	4.413
Cement	kg. per kg.	0.208	0.320
Expenditures of electric power on:			
Fuel	kwh. per kg.	0.023	0.031
Rolled steel	kwh. per kg.	0.490	0.966
Rolled copper	kwh. per kg.	7.137	10.333
Caustic soda	kwh. per kg.	4.619	5.431

*All expenditures of fuel and electric power in the iron and steel industry are assigned to the output of rolled steel.

a profound study of the actual relationships between all branches of the national economy and of calculating the real coefficients of full expenditures on the basis of direct expenditure coefficients. The summary balance of inter-branch relationships is of great significance for an economic analysis of social production costs and for studying the process of expanded reproduction in specific branches of the economy.

Preparation of the summary inter-branch balance of production and distribution of output will make possible the solution of a number of complex problems of a methodological character and this will undoubtedly lighten the job of preparing a planned inter-branch balance. Direct expenditure coefficients within the summary balances of inter-branch relationships (in money and value terms) will serve as fundamental indices for the planned balances.

Materials drawn from sample studies of groups of enterprises of different types will enable us to determine not only the average structure of expenditures for an entire branch but also the structure of expenditures for the more advanced enterprises. With this it will be possible to derive a matrix of full expenditure coefficients A_{ik}, both on the basis of average indices and on the basis of indices of expenditures for the advanced enterprises. A matrix of full expenditure coefficients obtained on the basis of a matrix of direct expenditures for the advanced enterprises can be used more widely in planning.

It stands to reason that the indices of the sum mary inter-branch balance will be used in curr planning only to a certain degree. The summar balance is just the first step towards the introd tion of the new method in planning practice. A great deal of preliminary work will be required fore the preparation of tables of inter-branch r tionships for plans covering a more or less len period of time can be undertaken. In order to c pile a planned balance it is necessary in the fir place to have planned coefficients of direct and expenditures. Planned coefficients characteriz production relationships between branches and products should be prepared with due considera tion for the new conditions of production corres ponding to the planned period. These coefficie should reflect the new technical level of produc which will be achieved during the planned perio and the structural change expected in material production. These coefficients can be obtained on the basis of profound analytical and researc work in the planning organs, branch institutes a designing organizations.

The derivation of coefficients of direct and f expenditures for planning purposes should mak possible to evolve a detailed system of nationw and regional norms of expenditures for a unit o every product. Improvements in norms should greatly contribute to an improvement in the qu of national economic planning.

Concrete ways of using inter-branch balance production and distribution of output for planni

poses will be determined on the basis of practi- experience. For the time being we can indicate some of the economic problems which could solved by means of inter-branch balances. In opinion these problems include:

establishment of proportions between concrete ments of the national economy;

calculations of the optimum variant of the ucture of material production.

hese problems will be solved with the help of tronic calculating machines which will greatly elerate all planning calculations and improve r accuracy.

s noted above, the national economic balance is starting point for all balance calculations in the cess of planning. Further concretization of the nce calculations and establishment of propor- s between branches and types of production uld be carried out with the aid of planned inter- nch balances of production and distribution of ut. Planned production in each industry will be ctly distributed among the replacement fund all branches of production represented in the enclature of the planned balance), the accumula- fund and the consumption fund. All this can be mplished on the basis of a system of planned ms as mentioned above.

ny changes in the volume of production or con- ption in one industry are reflected in the in- s for all the branches of production directly or rectly connected with the industry in which e changes nave occurred. Consequently, more r-cut proportions between all concrete branches e national economy are ensured at all stages e planning process (preparation of different ants, introduction of partial changes in the plan, . These are the principal possibilities of the ned inter-branch balance which ensure a higher ee of coordination in the plans.

major task of socialist economic planning is creation of the most economical and progres- structure of production, a structure which d meet the requirements of society with mini- n expenditures of living and materialized labor. when there is public ownership of the means roduction and the prevalence of planning is it ible to achieve such an economical structure cial production.

ith a planned inter-branch balance of produc- and distribution of output, it is possible to de- ine more accurately the economic significance rticular structural changes in the national omy. To this end it is necessary to compile ants of the balance which would not only pro- for various types of interchangeable products, lso variants which provide for different methods of production for particular types of products. Thus, variants of the balance may be compiled with structures of the fuel industry (different relative shares of coal, oil and gas), as well as variants with different structures of production or extraction methods, for example — different methods of ooal mining (open-pit, hewing, hydraulic extraction, etc.). By using full expenditure coefficients we can determine the total material and labor expenditures for the national economy as a whole connected with a given balance variant. A comparison of balance variants with different structures of production should make it possible to determine the national economic effectiveness of each variant. Given the data on specific capital investments in specific branches of the economy with different methods of production, it is possible to determine the capital required for each variant of the fuel balance with due regard for expenditures in allied branches of production.

The question of the economic effectiveness of different variants of the structure of production and the selection of the optimum variant from the standpoint of the productivity of social labor, proper reckoning of the time factor, etc., requires further careful study. It is evident, however, that the system of indices of the inter-branch balance of production and distribution of output and the associated possibilities of using mathematical methods will play an important part in solving this complex problem.

The inter-branch balance of production and distribution of output enables us to determine the total volumes of production for the industries and products classified in the accumulation and consumption funds. In other words, given the scale and structure of the national income in physical terms we can determine the scale and structure of the social product. These possibilities stem from the fact that the inter-branch balance can be represented as a system of equations in which production designated for accumulation and consumption by industries is given, gross indices of the social product by industries are the unknowns, and the given coefficients of direct expenditures are the coefficients of unknowns. By solving this system of equations we can pass from the given national income of the social product (with the aid of the matrix of full expenditure coefficients). This mathematical method makes it possible, on the basis of any part of the national income, to denote the corresponding part of the social product.

In order to use inter-branch balances of production and distribution of output in planning calculations it will be necessary to introduce some changes in the practice of compiling partial material

balances. It is necessary to concretize and work out in greater detail the branch components in the practical calculations which determine the resource requirements and are adopted as the basis of material balances and plans of material and technical supply. The resource requirements in these calculations must be shown for branches and products in accordance with the nomenclature of the inter-branch balance (and care should be taken to ensure that the lefthand and upper parts of the table are identically classified). All this would make it possible to include in the planned inter-branch balance the calculations for individual branches and products.

We must study the possibilities of organizing the information on material resource requirements in a way that would enable us to make extensive use of modern calculating technique (recording of orders from branches, processing them in all the links – beginning with the enterprises and ending with the Gosplan of the USSR).

Further theoretical investigations of a number of complex methodological problems will be required in order to use inter-branch balances in planning. This applies primarily to problems connected with improvements in the balance patterns, coordination of the inter-branch balance with the national economic balance and the system of material balances, coordination of the inter-branch balances expressed in money and in physical terms, problems of expressing simple and expanded reproduction of fixed capital in different branches of the national economy in the table of inter-branch relationships, problems of utilizing the full expenditure coefficients in current and long-range planning, etc.

Extensive work on the basis of Marxist methodology will have to be conducted jointly by economists and mathematicians in order to solve all these problems.

Footnotes

(1) Data for industry will be obtained, as mentioned above, on the basis of sample studies, whi expenditures on agricultural production, transpo etc., will be calculated on the basis of available terials of the Central Statistical Administration a Departments.

(2) Coefficients of direct expenditures have be calculated by a group of workers of the Economi Research Institute headed by N. A. Telezhkin on the basis of materials of technological, industria and financial plans of chemical enterprises (plan calculations of production costs for the basic pr ucts, estimates of expenditures and material bal ances for enterprises, plans for material and te nical supply, etc.).

(3) Calculations for the aluminum industry ha been carried out by M. S. Golynsky, senior scien tific worker of the Economic Research Institute.

(4) Furthermore, machine-building and metal working industries were represented as consume of material resources, while the production of these branches, with the exception of cooperative deliveries, was classified in the second section.

***

Voprosy Ekonomiki, No. 7, 1960

SVETLICHNYI:

oviet Town Planning Today

The All-Union Town Planning Conference held re-ntly under the auspices of the Central Committee of e CPSU ushered in a new phase in the planning, build-g and improvement of Soviet towns. This new phase characterized by a series of important features. ie task set by the Party of eliminating the housing ortage in the Soviet Union in the next few years eans that available housing in the towns and urban ttlements is to be increased through new building 60% in the current seven-year period alone. ery other urban family is to get a new apartment. is is feasible now because the Soviet Union has oved securely into first place in its rates of hous-g development. In 1958 Britain built 5.4 apart-nts per 1,000 population, France — 7.2, the USA 7.9, the Netherlands — 8.1, Sweden — 8.4, the deral Republic of Germany — 9.4, while the So-t Union built 12.9. Since then the rate of con-uction in the Soviet Union has risen still more rough the continued industrialization of the build-g industry.

There was a time when dwellings in the towns re built singly on numerous scattered sites. To-y, the rule is to build housing developments on e massive sites of unused land. The bulk of the wly-built houses consist of four- or five-story ellings with all modern amenities. The planning new residential areas has improved appreciably, d so have the cultural and public services. All lding follows standard money- and labor-saving signs with an accent on industrial construction thods that reduce the building process to a series erection jobs involving prefabricated structural mponents and details. New, advanced, and eco-mical town planning methods have come to the e.

These developments in the organization and tech-ue of housing construction have set the stage for eneral offensive on the town planning front, which one of the major sectors of communist construc-n. The main objective of Soviet town planning is ensure that the towns meet the Soviet man's ltifold material and spiritual requirements and eate a healthy environment conducive to the harmonious development of all his capabilities, to recreation and a higher productivity of labor.

This imposes a great responsibility on the efforts of all architects and town planners. What we build today must not only meet our own needs, but the needs of the people of the none-too-distant communist future. The Soviet people are putting too much effort and time, and very considerable funds and vast material resources into the construction of cities to tolerate short-lived stuuctures good only for the present generation. We cannot afford to let coming generations waste non-productive efforts and resources on remodelling what their fathers had built before them at the price of such tremendous work.

The towns that are going up today must become the world's best in the next few decades, and the standard of living of their populations must become the world's highest. This calls for the fullest possible utilization of the vast advantages offered by the Soviet planned economy and the absence of private ownership of land.

The growth of socialist industry is, as everybody knows, the principal economic basis for the emergence and development of towns. Hence, in planning the geographic distribution of industry we can concurrently control the inception and formation of new towns. What is more, we can also regulate the development of existing urban centers — their size, nature and industrial characteristics. The scientific assessment of the prospects for the development of towns is one of the principal tasks facing modern town planners.

It is our object to ultimately create equally good living conditions for the population of all our towns. Yet living conditions follow a different pattern from town to town. In the bigger towns life is fuller both materially and culturally. It offers virtually boundless scope for the application of the widest possible range of individual abilities and inclinations. A big town enables every citizen to receive an education and find employment in the sphere of his own choice. The big town has all the means to meet the high cultural requirements of the Soviet man —

university-level educational establishments, a large number of club houses, opera houses, concert halls, exhibitions and museums. A smaller town lacks all these advantages. The maintenance of these institutions of material and spiritual culture does not pay for itself, as a rule, in the case of a small population.

But this does not imply by any means that the advantages of a town are proportional to its size. The process of urban development is a complex and conflicting one. The growth of a city benefits its inhabitants only up to a certain point. A giant city acquires a series of negative features. A profusion of industrial establishments, vast numbers of automobiles, boiler-rooms that contaminate the urban atmosphere with smoke, fume, dust and harmful gases tend to affect the sanitary environment of a city and are harmful to the health of its inhabitants. The unrestricted territorial growth of a city tends to create long distances between its residents and their places of employment and recreation, and compels them to waste considerable time and means on travel. Territorial growth tends to complicate city communications, to add to the cost of the water supply, the sewerage and the transportation. Housing spills out of the residential blocks, driving wedges between factories, warehouses and railway stations. It tends to surround them, creating an unhealthy, unattractive and inconvenient conglomeration of buildings and structures of different purposes. The advantages of a big city thus gradually turn into disadvantages as it continues to develop. The city becomes both a bad and expensive place to live.

But in spite of this, the growth of big cities in our country, far from stopping, is continuing at a high rate. In spite of the fact that the Communist Party and Soviet Government have repeatedly — ever since the June 1931 Plenary Meeting of the Central Committee of the CPSU — called attention to the adverse effects that further growth has on the big cities, this growth has proceeded unabated. The population of Baku has increased by 193,000 between 1939 and 1959, that of Krasnoiarsk by 219,000, Kiev by 255,000, Gorkiy by 278,000, Erevan by 305,000, Perm by 322,000, Sverdlovsk by 354,000, Tashkent by 361,000, Cheliabinsk by 415,000, Kuibyshev by 416,000, Novosibirsk by 483,000, etc.

In the past, the State Planning Commission, the various ministries and the administrations located new enterprises chiefly in the big cities because in the early stage of construction this offered certain advantages in preparing the building site, organizing transportation, ensuring the supply of water and power, and in the provision of housing for the first contingents of builders — even if this was at the expense of the already overcrowded old housing. The executives of the City Soviets usually welcor such new industrial projects, expecting them to build large numbers of new dwellings. But as a rule excessive industrial development in the big cities tends to accentuate the housing shortage.

Rapid growth is chiefly confined to the big citie Many smaller towns are not developing at all. T average population of the 73 biggest Soviet cities (each with over 200,000) is 600,000, while the ave age for the other 4,527 towns and urban settleme is below 15,000. Is not this disparity much too great?

Zvenigorod, Mozhaisk, Volokolamsk and Ruza are each over 500 years old but are still the infa towns that they were many years ago. Generatio has followed generation, but only a small section of the young people stay at home. Most of them to study or seek employment in the big cities. T sharp differentiation of towns according to size, character and way of life does not only survive i our time but has even become intensified.

Own town planning policy, as the recent confer ence emphasized, should concentrate on eliminat the disadvantages of both the small and the excessively big towns. Thus requires that no new enterprises be built in the big cities, and that the emphasis in new industrial development is laid o the small and medium towns, with the object of their planned extension and improvement. This was the basis for the emergence of Kemerovo, Stalinsk, Pavlodar, Cherepovets, Temir-Tau, Us Kamenogorsk and many other industrial towns. country has more than 1,000 small towns with po lations under 50,000, and many of them have all necessary potentialities for industrial growth. I is up to the planning agencies and regional econo ic councils to determine which towns are industrially promising and to tackle their planned development without delay.

The desirable methods of developing the small towns may best be established through the planni of big industrial districts, and wherever such di trict planning is redundant, through long-term in dustrial distribution projects in economic admin trative regions to be drawn up by the economic councils and planning agencies. In planning the Krasnoiarsk industrial district, for example, de signers discovered that it was economically desi ble to develop the towns of Achinsk, Kansk, Tais Batogol and others, towns which previously seem to have no future. The long-term town developm plans should be oriented towards a population of to 300 thousand. Estimates show that this provi the most desirable living conditions and the

ıallest outlays on building and maintenance. De-
lopment of the numerous small towns will stimu-
e the further economic and cultural growth of
jacent districts; it will tend to provide the popula-
ns of these districts with socially useful employ-
ent and contribute to the gradual elimination of
e distinctions between town and village.

The other important process — that of reducing
e giant cities by relocating some of their indus-
al enterprises, research institutions and estab-
hments of higher learning in suburban satellite
wns — should go hand in hand with the first. Enter-
ises whose products are largely consumed in the
y or the adjacent area should be the first to be
moved to the satellite towns.

It still remains to be seen which is more desira-
e — to build the satellite towns on vacant sites,
to base them upon existing communities — small
wns and suburban centers.

Preliminary estimates and practice abroad — in
rticular the planning of satellite towns around
ndon — seem to indicate that the latter variant is
eferable. This would avoid heavy initial expendi-
res on preliminary engineering work, the building
new roads and railroads, the expensive laying of
ter mains, sewers and power lines. Further-
ore, satellite towns based upon existing communi-
s would simultaneously solve another highly im-
rtant problem — that of the gradual renewal of
l communities with mediocre housing facilities,
eir rapid improvement and the provision of better
ltural and public services for the population of
e adjoining district.

A realistic approach to the problem of reducing
e size of the big cities requires that the building
satellite towns become accepted as established
vn planning policy for an appreciable number of
ars. The erection of one or two satellite towns
the vicinity of a big city would scarcely diminish
population. To reduce the population of Mos-
w by 1,000,000 in the next decade, for example,
me 20 satellite towns would have to be built in the
ne neighboring the Soviet capital.

The building of eight new towns around London
s so far failed to reduce its population. This is
plained by the insufficient housing construction in
e satellite towns themselves on the one hand, and
the fact that the premises vacated by enterprises
re instantly occupied by other enterprises. This
to be avoided in the Soviet Union lest the erec-
n of satellite towns turns into a futile effort lead-
; to the industrial congestion of both the city and
suburban zone.

To avoid errors in the regulation of the growth
big cities and in the proper solution of the prob-
n of breaking them up into smaller units, their
master plans should be dovetailed with plans for the suburban zone within the radius of 100 kilometers. The bigger the city, the farther its influence spreads. With transport facilities what they are today, tens of thousands of people, resident in outlying suburban areas, daily travel to work in the city, while many of the city dwellers are employed far beyond city limits. Enterprises of the building materials industry, stone quarries, large waterworks, sewerage installations, gas reservoirs, warehouses, etc., are located in suburban zones. The suburban zone is a major source of foodstuffs — dairy produce, vegetables and fruit. Its woods and water reservoirs are a constant source of fresh air and provide sites for sanatoria, rest homes, Pioneer camps, sports and tourist centers, and parks for week-end outings.

All these factors bind the city and its suburban zone into an integrated unit. Yet master plans for suburban zones are available so far in just a few of the biggest cities — Moscow, Leningrad, Riga, and a few others. No specialized planning agencies with the necessary experience exist so far to handle suburban planning, nor is there a methodology for this purpose. To bring town planning up to the requirements of our time this breach must be filled.

It is no less important to have accurate forecasts available when planning and developing towns. Practice shows that the wide range of factors that shape the outlook for the future development of towns must be thoroughly considered if the master plan is to be realistic.

All too often, master plans must be revised over and over again to keep pace with the actual changes that occur in the planning of a town. What is the reason for these phenomena which undermine the principle of planning in the development of our towns and lead to a continuous revision of plans, prolong the period of designing and increase its costs out of all measure?

Many planners are inclined to think that the main reason for the rapid obsolescence of master plans lies in their excessive detail and lack of flexibility. This is admittedly a major failing, but it is by no means the reason behind the frequent revision of master plans. If only the details of the plans had to be revised the harm would not be so great. The trouble is that the very foundations of the plans have to be altered due to sudden changes in the long-term industrial development trends of the towns concerned, such as the erection of unforeseen enterprises and their location in districts that radically alter the town pattern. New industrial construction causes the population to grow and this, too, calls for radical alterations in the master plan.

The State Planning Commission and the planning commissions of the Union Republics do not, in effect, participate in determining the economic prospects of towns. In most cases that is done at their own peril by the town planning agencies, which lack the essential data for this purpose. All too often the economic planning agencies are content to formally endorse the economic prognosis submitted by the town planners. This endorsement does not commit them to abiding by the town plans in distributing and locating new industrial enterprises. In Novaia Kakhovka, Volgodonsk, Almet'evsk, Rudnyi, Angarsk and other towns, for example, the population estimates of the master town plans were repeatedly altered. In the long run the actual population of these towns will exceed the original estimates severalfold because their industrial potential was not duly studied when the master plans were being drawn up. Miscalculations of this sort cause considerable damage to the national economy. Streets, squares, cultural and public services, waterworks and sewers built for a population of 25,000 to 50,000 have to be rebuilt to meet the requirements of a population of 150,000 to 250,000.

Novaia Kakhovka was planned and built as a community of canal builders. At present, because of its favorable conditions for industrial development it has been decided to locate several enterprises here and its population will rise from 20,000 to 50,000. This will mean felling the green belt around it that shielded it from the winds and building four- and five-story dwellings along the town boundaries, beyond the existing single-story houses. The entire pattern of the town will thus have to be radically altered.

The town of Rudnyi, where the Sokolovka-Sarbai Ore Dressing Mill is located, was planned to lie between the river bank and a dense semi-circle of industrial installations. The further expansion of the town, which its industrial development entails, is thus extremely difficult and can proceed solely in the direction of an accidentally surviving "outlet" between the river and the industrial area. The network of streets in Rudnyi did not envisage any further growth; blocks of single-story houses stand in the very heart of the town. Similar "reconstruction" is required in other towns as well, where the planners failed to properly assess the potential possibilities of further growth.

These facts indicate that the economic planning agencies should play a greater part in and bear greater responsibility for the determination of the economic prospects of towns. No absolute guarantee is possible, however, that developments will not require unforeseeable modifications. This is why the master plan should be made more flexible, so that departures from it in the process of build ing (replacement of one enterprise by another, th removal of an industrial construction project fro one site to another, a change in population caused by the erection of an undertaking not provided fo in the town plan, etc.) should not entail radical alterations in it.

This stability of the master plan may be achiev by setting aside grounds for industrial constructi on the basis of a thorough study of development trends. Provisions should also be made for appr priate reserve residential areas, conveniently lo cated in relation to the industrial districts. This would make the master plan effective over a good number of years in spite of unforeseen developments that may necessitate particular modifications of the original pattern.

But this simplification of master plans should diminish their role in determining the prospects a town's growth. This is what the plan is for, aft all. Its purpose is to guide the development of a town in the desired direction. The point is mere to reduce and simplify the details of the plan, pa ticularly for the small towns. Aerial photography if more extensively applied, offers an avenue for appreciable savings in the cost of designing. Not only does it reduce the cost of designing and surveying; it also accelerates these processes.

One of the principal conditions for the economi cal construction, maintenance and improvement of towns is the proper functional location of the town areas, i.e., locating industrial and residenti districts, warehouses and railway stations, publi works and green belts in such a way as to provid maximum convenience at the minimum cost. Th is what the master plan is called upon to provide In practice, however, the functional zoning of tow is often violated. In many towns industrial and residential districts alternate. This affects thei esthetic appearance, raises building and maintenance costs, and lowers the living conditions o the population.

The proper location of residential and industri districts in relation to each other is of special i portance. On the one hand, residential districts should be sufficiently far away from the industri areas and, on the other, the distance between the should not be so great that employees will have spend too much time going to and from work. T town plan should be so patterned as to require th smallest possible number of transportation facil ties and in such a way that people will be able to get to the places they frequent on foot. In other words, transportation requirements should be so solved as not to create a transportation problem

The Soviet socialist town should be planned in

e most rational possible way and each section of should be used with the greatest possible effect. the meantime, many of our valuable urban areas e being wasted as sites for diverse temporary rehouses, ancillary establishments, testing ounds and inoperative training airfields.

All too often industrial enterprises occupy ex-ssively large grounds. Part of these grounds ually lie idle. The management keeps them "in se" they may come in handy, while workshop sites e used ineffectively, their density often being un-r 20 to 25% while in accordance with existing rms it could well be 30 to 40%. In most of our ies the areas occupied by industrial enterprises r head of population are nearly double those in ited States cities.

City organizations frequently do not know where locate new housing while large areas near exist-; streets with ready underground communications d public transport lines could well be freed and de available for building. Such abandoned ounds were set aside when the seven-year build-; plans were drawn up in Kuibyshev, Minsk, Tula d other cities. The use of these grounds is bound yield a large saving, since the preparation and velopment of new building sites outside city limits ually involve a 5 to 6% rise in the cost of con-uction.

As a rule, all new housing should be located in ge massive blocks and existing buildings should kept intact. This enables planners to create ge residential microdistricts with large spaces ween the houses, large green yards, spacious rdens, sports grounds and cultural and public ser-e institutions. Disregarding this all-important nciple, building sites in many towns are scat-ed throughout the city, new houses being wedged on small lots between existing houses. In Alma-, for example, 280 houses were built in 1958 250 sites, with one or two houses per lot.

Building on scattered sites is more expensive ause it makes it difficult to apply mechanization involves a greater number of ancillary struc-es, more transport facilities, more manpower, . With such location densely populated residen-blocks are made still denser and less ground vailable for plants and recreation facilities.

a dwelling is not just an apartment. The unds adjoining the dwelling should and must be ned into a recreation area with a garden and rts grounds. A microdistrict is the most con-ient and hygienic form of housing development. icrodistrict facilitates solution of the recrea-problem, provides comprehensive cultural and lic services, and isolates dwellings from heavy ffic thoroughfares.

A large microdistrict enables planners to abandon the traditional principle of small blocks with a perimetric location of dwellings in which a large portion of the houses inevitably face north. Building on a large area of up to 30 to 50 hectares, free from a fixed street pattern, enables them to take advantage of the natural relief, to reduce digging jobs and economize on foundations and cellars. The free and picturesque arrangement of buildings to suit the natural terrain enhances the architectural appearance of a housing development. Moreover, the creation of microdistricts yields a considerable saving on road building, which sometimes adds 30 to 40 rubles to the cost of each square meter of new housing area. These outlays may be halved.

Despite the numerous advantages of concentrated housing construction and planning by microdistricts, this method of planning has only recently been introduced on a large scale. Previously, the new approach was hampered by the limited volume of construction and the shortcomings of the departmental system of economic management. To create a large microdistrict, at least 80,000 to 100,000 sq. meters of housing must be built at one time. Until recently, however, this scale of construction was in evidence in only a few of the biggest cities. Yet even in the latter, construction was often scattered on numerous sites because each of the departmental builders was erecting no more than a few houses for the personnel of their plant or institution. The erroneous tendencies that prevailed among many architects, their efforts to build showy thoroughfares, all too often in defiance of the interests of the population, also had a negative effect.

The organization of economic councils put an end to the distortions of the departmental system. What is more, housing construction has increased immensely in the last few years. The stage is thus set for organizing building on the principle of large microdistricts with the most advanced and economical town planning methods. These possibilities must be utilized in full.

The planning and building of urban industrial districts must be greatly improved. The departmental system did considerable harm to the designing and building of industrial enterprises. Industrial districts were built up without a master plan; each ministry largely concentrated on promoting its own departmental purposes. All too often, railway approaches, power stations, boiler rooms, water mains and sewers, warehouses, building centers and ancillary shops were built for each plan individually. As a result, urban industrial districts were built up chaotically, without integrated control. Considerable state funds were wasted unproductively.

The new system of industrial and building management and the organization of economic councils are conducive to the planned development and improvement of industrial districts in accordance with detailed plans. A general district planner, and sometimes a general builder for all the industrial areas in a city, should be appointed to coordinate the erection of plants and the building of a district system of engineering communications, building centers and transport lines.

The balanced development of towns, that is, the observance of certain proportions between housing, cultural services and public service establishments is one of the major requirements of Soviet town planning. Violation of these proportions has the effect of leaving new residential areas without the necessary number of schools, shops, catering establishments, children's institutions, repair shops, and cinemas. Dwellings ready for occupation sometimes have to wait long for sewerage and heating.

A recent investigation by Gosstroi in over 20 towns has revealed many alarming facts pertaining to the lag in the construction of cultural and public service establishments. The outlays on the building of cultural and service institutions should be 15 to 20% and those on equipment and improvements about 25% of the total cost of building a town. In most towns these percentages are considerably lower. In Stalingrad, for example, no more than 9% of the annual outlays were allocated for cultural and service construction in 1959, and only 6.7% on equipment and improvements. Under the 1960 plan these figures will be still lower. As a result of these disproportions in the distribution of capital investments, schools must work in two and sometimes in three shifts, and there is a distinct lack of children's institutions and shopping facilities in many towns. In Orel, Belgorod, Stalino and Gorkiy there are no more than 2 to 5 store clerks per 1,000 population, instead of the standard 6, while the number of catering establishments is one half of the standard.

Our towns do not have enough green areas — parks, gardens, squares and boulevards. There are no more than 3 to 5 sq. meters of green area per dweller in most of the towns, while the minimum standard should be 10 to 15 sq. meters. In Britain, for example, the green area in the new towns amounts to 25 to 40 sq. meters per dweller. We must build up a large network of nurseries to improve our towns rapidly in this respect, and public organizations and all individuals should lend a hand in planting and maintaining the green areas.

Balanced urban development calls for radical changes in the system of planning and financing urban construction. The town should be viewed as an integral whole with a master plan and an over- construction estimate, like a large industrial pr ject. All the funds for housing, cultural, and se vice facilities should be concentrated in the han of the municipal executive committees, who shou be the sole distributors of credits for town build ing. This would undoubtedly greatly improve the planning of towns and make for a balanced and harmonious development of all their elements. This has been most conclusively demonstrated i Moscow, Leningrad, and a few other big cities, where the bulk of the building funds are handled the municipal authorities. The introduction of th new system of planning and financing urban devel ment will have a rapid and positive effect on the quality of construction; it will improve the cultu and public services and tend to reduce the cost c construction and maintenance of our cities.

A total of 650-660 million sq. meters of housi will be erected in the current seven-year plan p riod. A few thousand square kilometers of new terrain are to be developed for housing develop- ments in towns. By the end of the seven-year pe od the areas of many towns will be more than doubled. At present, new housing is being locate as a rule, on vacant land. But in many town are such vacant lots are too few or too far from the town; their development would be too costly and population would suffer inconveniences. For thi reason it may be more desirable in some cases reconstruct the existing smaller dwellings and erect new four- and five-story houses in their place. This would generally treble or quadruple the floor space. Furthermore, use would thus b made of already existing streets, underground c munications and sometimes even existing city transport lines. Such is the case in Sverdlovsk, for example. Estimates showed that building ne houses in place of the oldest, largely pre-revol tionary buildings, far from being harmful, woul many cases yield a certain saving in compariso with the development of new suburban sites.

We have many towns where dilapidated buildi occupy large sections of the most valuable cent districts — Novosibirsk, Krasnoiarsk, Pensa, Gorkiy, Tula, etc. They have been in use so lon that in the very near future they will become un for habitation.

The municipal authorities, architects and bui ers must start preparing for the planned recon struction of the more dilapidated urban blocks. They must make a thorough investigation of all housing, take a proper inventory of it, single ou districts for priority reconstruction and work o building and improvement plans for them in goo time. They should also examine the compositio

the population in the reconstructed districts, t their places of employment, and draw up the ost desirable plans for their resettlement. Re-nstruction should only be undertaken following a rough technical and economic comparison of dif-ent variants. The good housing should be pre-rved in the course of reconstruction.

Reconstruction of our towns, particularly of their ntral districts, is necessitated not only by eco-mic but also by social considerations. It would be fair to let even a small section of the popula-n live for many years in dilapidated houses with-modern conveniences when in just the current ven-year period nearly 60 million city people will moved into modern dwellings. It is no less nec-sary to make radical improvements in the outer pearance of our towns from the standpoint of chitectural and town planning standards, to clean cluttered districts and to erect new housing de-lopments and architecturally attractive blocks buildings in their place.

The reconstruction of towns raises the whole estion of the further existence of privately owned using. Even now many of the bigger cities are amped by a vast ocean of small, badly built uses. In Omsk, Novosibirsk, Stalingrad, and Mag-ogorsk these little houses hold blocks of multi-ried buildings in a vise-like grip and have rged close to the heart of the cities. For many cades hundreds, even thousands, of building lots re allocated annually for private building in ny towns. It is not surprising therefore that ny of the big cities are about to assume the ap-rance of immense unattractive villages. In atov, Kursk, Novosibirsk, Ivanovo and many oth-cities more than 80% of the residential blocks occupied by privately owned houses. Each pri-e builder gets up to 600 sq. meters of land, ch means that the density of private building is more than a quarter or a fifth of the density of state-owned housing.

But the principal evil is that the large areas upied by private houses cannot be properly im-ved, since the building of a vast network of ds, watermains, sewers, transport lines and oth-installations would require the state or the pri-e builders to invest immense sums and re-rces. Furthermore, it is more difficult to build ools, hospitals, shops, children's institutions, ., in such districts. Their inhabitants are thus npelled to undergo many inconveniences unknown he inhabitants of state-owned dwellings.

n the not-too-distant future private building will bably die out. Even now, when the chances of ng allotted housing in state-owned dwellings e greatly improved, private building has declined rapidly in many towns. Yet it will un-questionably continue for some years. It should be controlled so as not to spoil the architectural ap-pearance and complicate the improvement of towns.

The obvious alternative, it seems, is to en-courage cooperative building of apartment houses. Such a reorganization of private building would re-duce the necessary building area by some 66 to 75% and would enable us to equip the new houses with watermains and sewers, to provide them with paved approaches and thoroughfares, to build the required number of cultural and service establish-ments, and to greatly improve the architectural quality of the houses in question.

To solve the major problems of Soviet town plan-ning we must continue to industrialize and stand-ardize housing construction. That is the only way to eliminate the housing shortage rapidly. Pre-fabricated reinforced concrete parts, pre-fabri-cated building components — wall panels, ceilings, stairs and landings, foundation blocks, bath and toilet units — are the most important means of stepping up the rates of housing construction.

In the last five years the output of pre-fabricated reinforced components has increased eightfold and amounts to 25 million cubic meters per annum. More than 150 construction factories which will supply components for 9 million square meters of large-panelled housing each year are being built. What is more, in the near future their capacity will rise to 28 million square meters. Large-panelled industrialized building will yield immense savings. It will reduce manpower requirement by about one half, the weight of the buildings will shrink to a half or a third, and the cost of building will drop by about 10%. The objective of furnishing each family with a flat of its own called for the develop-ment of standard plans in which the cost of build-ing an isolated flat would not exceed the cost of flats housing a few families. This most compli-cated task has been solved by the intensive cre-ative efforts of many thousands of designers and researchers. New economical types of flats have been projected in which the cost of a square meter of floor space has been reduced by 12 to 14% and the cost of an apartment by 35%. Under the old standard plans separate flats were allocated to less than one-third of the families, while now more than 90% of the families that receive new housing are furnished separate flats.

Seventy-one per cent of all the housing erected in 1957 was built according to standard blueprints, while in 1959 the percentage rose to over 90. The cost of erecting public service and cultural build-ings has also been considerably reduced in the last few years, but industrialization and pre-fabrication

is somewhat lower in this field than in housing. The problem of standardizing pre-fabricated elements and components for dwellings and civic buildings must be solved in the near future, as well as the problem of standardized sets of dwellings and cultural and public service buildings. This will tend to further reduce their cost and building schedules, to extend the possibilities for an integrated development of residential districts, to improve the architectural qualities of urban building, and to facilitate the construction of uniform architectural ensembles.

***

Soviet town planning faces very serious and responsible tasks. The modern town is a complex organism. Its development and improvement are called upon to facilitate the solution of major socio-economic, engineering, technical, architectural, sanitary and hygienic problems, all of which constitute a single interconnected complex. This is why the harmonious development of a city over a long period on the order of 20 to 25 years calls for a comprehensive master plan. Day-to-day control of the building and improvement of cities should be based on five- or seven-year plans of residential and community development in accordance with the long-term economic development plan. Furthermore, detailed plans should be drawn up for residential and industrial districts beforehand. The absence of any one of these plans may give rise to all kinds of discrepancies in the building and improvement of towns.

At present, however, towns are poorly provided with the appropriate blueprints and plans. According to Gosstroi, some 350 towns in the Russian Federation of a total of 875 lack master plans. In the Ukraine only 187 of 331 towns, and in Belorussia 48 of 64 towns have master plans, while in Kazakhstan 26 towns do not have master plans, etc. The master plans of many big cities are not officially endorsed and therefore often ignored. This applies to Sverdlovsk, Novosibirsk, Gorkiy, Irkutsk, Kiev, Kharkov, Stalino, Odessa, Lugansk, etc.

Many of the old plans require far-reaching modifications due to the sharp increase in urban construction and the use of more progressive and economical methods of residential and industrial district planning. The distribution plans for housing and the erection of cultural and public service buildings are seriously inadequate. There are o 30 such plans for all of the Russian Federation, for the Ukraine, 4 for Latvia, 5 for Lithuania, et Particularly backward is the planning of detailed district projects for large-scale housing develop ments. Most towns lack plans of this kind, and t could cause a drop in the quality of new resident districts.

All the big and medium-sized cities must be p vided with master plans before 1965, and within year or two they should have building distributio plans for the current seven years. Detailed plan must be drawn up a year before actual building i begun. To cope with this complicated task the n work of designing offices in the republics and towns must be expanded and improved, the traini of town planning specialists extended, and an ext sive surveying program carried out.

Plans alone are not enough to create a good town. These plans must be executed consistentl and according to schedule so that no one will vio late or amend the approved project at his whim. The role and responsibility of the senior archite as the organizer and creative guide of the over- building of a town should be raised for this purp The same is true of the authority and terms of reference of the government architectural and building control agencies. The appointment of s ior architects of big cities by the Councils of Ministers of the Union Republics, the subordinat of government inspection agencies not only to th municipal executive committees, but also to regional and republic government inspection agencies, and an improvement in the system of agen handling architectural and building affairs will h a positive effect on the integration of town plann and an improvement in the quality of planning an construction.

Great and manifold tasks confront town plann in our country in the period of the comprehensiv building of a communist society. The Communi Party and the Soviet Government are doing ever thing to have these tasks realized successfully f the benefit of the Soviet people. It is the duty of builders and architects to make our towns the world's most attractive and comfortable in the near future.

Vestnik Leningradskogo Universiteta, Seriia Ekonomiki, Filosofii i Prava, No. 3, 1960

. S. NEKHOROSHEV:

he Economic Nature of Remuneration for Inventions and ationalization Suggestions

V. I. Lenin attached great importance to material centives for stimulating the creative activity of ventors and rationalizers. He urged that no eans should be spared to reorganize the national onomy according to the latest technology, that intors' efforts should be highly esteemed, that alcations should be made for materially rewarding em. In a letter to the Presidium of the Supreme onomic Council on October 16, 1922 he requested at the Order of the Red Banner of Labor and a subantial sum of money be awarded to a group of enneers headed by I. M. Gubkin for conducting a mprehensive scientific study of combustible shale d sapropel. (1)

The great role of the Leninist principle of materal incentives to technical creative endeavor was -emphasized at the 21st Congress of the CPSU as ell as in the resolutions of the June 1959 and July 60 plenary meetings of the Central Committee of e CPSU, and in the decision of the Committee and e USSR Council of Ministers "On Providing Ecomic Stimuli for Enterprises and Increasing Maial Incentives for Workers to Create and Apply w Equipment and Technology and to Comprehenely Mechanize and Automate Production" (July 60). The size of remuneration for research in oblems related to the national economy is made pendent on the results derived from the applican of the research results in production.

The Statute on Inventions, Discoveries and Ranalization Suggestions and the Instructions on muneration, operative since May 1, 1959 (2), ve eliminated many shortcomings in the system material rewards for inventors. The size of wards for rationalization suggestions has been creased by 25% and the premium fund allocated those promoting the application of technical sugstions has been increased threefold. The average yment for one applied suggestion increased in the SR national economy from 233 rubles in 1958 to 3 rubles in 1959 (at enterprises of the Leningrad Economic Council — from 264 to 292 rubles). (3)

While attaching special importance to personal material incentives for worker inventors, the Communist Party corrects those executives who emphasize this principle at the expense of such questions as improving the organization of workers' inventive endeavors and the application of technical suggestions, and who explain away all the shortcomings in technical creative work by references to inadequate material stimuli. (4) As far back as 1929, V. V. Kuibyshev wrote: "... inventive endeavor must not be regarded as a source of social maintenance... It requires a different approach." (5) All the more so now. The sentiments of most Soviet people are subordinated to a lofty ideal: to be useful to society, to produce more and more of the good things of life for it. "It is this and not the thirst for profit, as is the case under capitalism, that is the principal motive force behind the activities of the Soviet people." (6)

Our country has a system of standardized state remuneration for inventions, discoveries and rationalization suggestions which no capitalist country has.

The term "remuneration" is often used to denote a variety of dissimilar concepts. It is frequently used in a very broad sense to include wages and premiums. Remuneration for inventions, however, has a specific meaning. First of all it is not a premium. A premium is a form of reward for good work. It is paid by the management in agreement with the trade union organization, provided the enterprise has funds for this purpose. Remuneration for inventions is an obligatory, state-established form of money payment for the creative work of the inventor.

This remuneration is more akin to wages in that it is a form of compensation for labor expended on creating an invention or rationalization suggestion.

Yet it differs from wages. Although labor is the economic source in both cases, the forms of

computing its expenditure differ. This remuneration is not established for current labor which is ultimately measured in terms of time, but for a specific result of labor in an objective form. In the latter case the expenditure of labor is reckoned by: a) the economic effect derived from the invention; b) the technical importance of the suggestion (invention or rationalization suggestion); c) the degree of completeness of the given invention or rationalization suggestion.

The difficulty in examining the economic nature of remuneration for inventions does not lie in defining its essence but in finding in practice a sufficiently reliable criterion for determining the quantity and quality of the inventor's labor.

The best criterion is the economic effectiveness of the inventor's proposal.

Legislation and legal literature subdivide this economic effectiveness into assumed-annual and actual savings. "A tentative saving is termed 'assumed-annual saving' because it is assumed that the suggestion will in reality be applied in the course of a year and on a scale envisaged by the technical, industrial and financial plan. ... The saving derived in connection with the actual application of a suggestion is termed 'actual saving.' " (7)

From the economic viewpoint, however, neither the actual saving nor the assumed-annual saving constitute the real saving derived from the invention. These values are quantitatively unequal and qualitatively heterogeneous.

The real saving from an invention is the difference between the production cost of an equal quantity of output before and after applying the suggestion (throughout the whole period of its application), while the economic effectiveness is an assumed value depending on factors many of which do not influence the magnitude of the real saving. First of all, the magnitude of the economic effectiveness depends on the method of computing it for the assumed length of time. Until 1931 the saving was calculated after 6 months' use of a suggestion; now it is reckoned for a maximum period of 12 months (in the case of inventions — for any of the five years following their introduction; in the case of rationalization suggestions — for any of the 2 years).

The economic effectiveness and, hence, the size of the remuneration may be seriously affected by the raising or lowering of prices of raw materials and supplies, which is done in a planned manner in our country. This applies to suggestions for saving raw materials and supplies (and they make up the greatest part of the total number of suggestions). For example, to make certain that the rise in wholesale prices of raw materials and supplies introduced on January 1, 1949 did not sharply and unreasonably increase the amount of remuneration for inventions and rationalization suggestions, it was established that the sum from which the annual saving was to be computed shoul be reduced: for metal — by 50%; coal — 66.7%; electric power — 33.4% and so on. After 1949 wh the prices of some raw materials and supplies be gan to decline again, it was decided to apply coeff cients based on 1949 prices in calculating savings derived from inventions and rationalization suggestions.

The reduced coefficients have been abolished and this has been a source of additional increases in remuneration for suggestions on saving raw m terials and supplies.

An important factor in determining the econom effectiveness is the method of computing overhea expenses. The new rules for calculating savings from inventions and rationalization suggestions (adopted on December 22, 1959) have established strictly defined procedure for computing overhea expenses. Under this procedure the money savin from the same number of applied proposals may somewhat smaller than previously. For example at the Leningrad metal works the overhead costs the saving derived from inventions and rationaliz tion suggestions in 1959 amounted to 32.4% (4.2 million rubles). If the overhead costs were not reckoned in 1959 the plant would have had a savi not of 12.9 million rubles, but only 8.7 million ru bles. This could not have altered the national ec nomic (real) saving. Nor will it be smaller in 1960, although for this year the Leningrad Econo ic Council planned a saving from inventions and rationalization suggestions at all its enterprises 550 billion rubles, or 23 billion rubles less than 1959. (8)

That the calculated economic effect does not al ways correctly represent the actual saving may also be demonstrated by the following example. say, an electronic computer replaces 20,000 peo with an annual payroll of 250 million rubles, this does not necessarily mean that it saves only 250 million rubles (less operating expenses). Since mathematical calculations proceed in consecutiv operations, i.e., each subsequent step of computa tion can only proceed after the completion of the preceding one, neither 20,000 men nor any other number can replace the machine. In 1958 alone, machine computation yielded a saving of more th a billion rubles.

In addition to all this it should be noted that th rules for calculating economic effectiveness are frequently violated in practice. Less than 50% o the savings from inventions and rationalization

ggestions in industry for the country as a whole re calculated for the period 1951 to 1959 (only % at the enterprises of the Leningrad Economic uncil for 1958 and 1959). (9) The fact that the nomic effectiveness of nearly half of the applied ggestions is not calculated for some reason or er does not mean that these suggestions do not ld any saving.

In 1959 direct or indirect savings were not kkoned at the Leningrad metal works on 23.3% of applied suggestions (altogether savings were not kkoned on 40.8% of the cases) and at the Russian esel factory the corresponding figure was 8%.

All this only shows that because of subjective thods of computation economic effectiveness es not always reflect the real saving derived m inventions and rationalization suggestions. is, however, is a quantitative aspect of the mat-

The qualitative heterogeneity of these categories sists in the fact that the real saving is the re-t of the inventor's labor, whereas the economic ectiveness is a formal and legal yardstick for asuring this labor, the basis for determining the e of the inventor's remuneration (like piece es in determining the amount of wages). Legal forms, N. S. Khrushchev pointed out, uld not be confused with the substance of the so-l relations of which they are the expression.

This special form of measuring labor stems m the specific character of creative technical eavor. Nor was it evolved all at once. It was 1926 that economic effectiveness began to be d as the basis for determining the amount of re-neration for inventions and rationalization sug-tions.

ome have expressed the view that remuneration inventions has two qualitatively differing eco-nic foundations: the inventor's labor expendi-e and the economic effectiveness of his sugges-. Accordingly, the amount of the remuneration presumably composed of two parts: com-sation for the expended labor, and society's ibute" representing the economic realization of art of the technico-economical effect. (12) lthough the exponents of this viewpoint pro-e that the answer to the question of the eco-nic nature of remuneration for the inventor uld be sought in the peculiarities and specific racter of inventive labor, they give a contra-tory and, to our mind, wrong answer to this stion. They recognize the labor character of nuneration only formally, only in words. First, do not really examine the question of the specific character and peculiarities of inventive labor. Second, if one is to consider labor and economic effectiveness as independent and separate grounds for the inventor's remuneration, how then is the expenditure of the inventor's labor measured? For the labor on which the distribution is based should be measured somehow. This is necessary to ensure equivalence (minus the part of the product that goes into public funds) between the labor expended and the remuneration. If there is no criterion for measuring inventive labor then the inventor's remuneration is not determined by the economic law of distribution according to work. Yet one of the proponents of this viewpoint devotes a whole chapter to the law of distribution according to work.

In addition, we cannot agree with the view that there are two bases for the inventor's remuneration for the following reasons. If the assumed-annual saving is to be regarded as the second basis for remuneration then this idea is incorrect because a juridical form cannot be an economic basis for any kind of distribution.

Neither can the real saving derived from inventions and rationalization suggestions be regarded as the second economic basis for the inventor's remuneration. The real saving is itself based on inventive labor. The labor of any worker who uses modern implements yields a saving to society. Yet we do not say that the economic effect derived underlies the wages of a miner, builder, etc. What underlies their wages is labor, while economic effectiveness, measured in terms of the quantity of output or in terms of the number of work operations performed, determines only the amount of the earnings (not its economic basis).

In its economic content remuneration of the labor of inventors under socialism can be nothing but a specific form of the necessary product. F. E. Dzerzhinskii wrote that in creating material and social conditions for inventive endeavor, "we must not pursue the line of buying the inventor and relying on his personal greed." (13)

The assertion that our state pays the inventor a "tribute" in addition to compensating for the expenditure of his labor is an exaggeration, to say the least. The following proposition of Karl Marx holds true even under socialism: "Science, a product of mental labor, is always valued much below its cost because the labor time necessary for its reproduction is by no means proportionate to the labor time required for its initial production. Thus, for example, a school boy can learn the binomial theorem in the space of one hour." (14) Similarly, an invention is hundreds of times easier to reproduce than to originally create. Like the

whole idea of the two bases for remuneration, the concept of "tribute" arises only in those cases when little labor is expended on an invention but because of its extensive use it yields a considerable saving. There may, however, be the reverse case, which is met with in practice just as often: an inventor has worked for years but his invention is used only in the production of single items or in small-quantity output. In this case the inventor will not be compensated for the labor he expended if the amount of his remuneration is to be determined only by its economic effectiveness.

The average amount of remuneration per applied suggestion in the national economy of the USSR in 1956-1959 amounted to 245 rubles (together with premiums for promoting its application). In 1959 the average remuneration at enterprises of the Leningrad Economic Council was 292 rubles; in the Moscow City Economic Council — 276 rubles, Sverdlovsk Economic Council — 268 rubles, Gorkiy Economic Council — 227 rubles. It should also be noted that for suggestions whose savings were not calculated (and these comprise half of the total) remuneration in the absolute majority of cases does not exceed 100 rubles. (15) Inventions receive the highest remuneration. Out of the 147 inventions applied at enterprises of the Leningrad Economic Council in 1959 (0.12% of all suggestions) the most valuable invention was one which yielded an annual saving of 1 million rubles. The inventor received 41,000 rubles. (16)

It happens that some inventors receive a "tribute" from society. But just as often other inventors are not recompensed for the labor they have expended.

Inventors, like all working people engaged in material production, devote part of their labor to the expansion of production and to satisfying various social needs.

For the country as a whole, remuneration in industry for inventions and rationalization suggestions in 1956-1959 comprised 4.1 to 4.8% of the economic effect; for Leningrad the economic effect in 1958 and 1959 was 18 times as high as the sum paid out in remuneration and in premiums for promoting the application of inventions and rationalization suggestions. (17)

The greater the saving from a proposal the higher is the proportion of the saving that goes into the public consumption fund. True, the absolute magnitude of remuneration also increases, but slower than the economic effect. This is theoretically justified. If the amount of remuneration were to increase in direct proportion to the economic effect (this would be the case if the latter was the economic basis for the remuneration), then the inventor would receive much more than is necessary to compensate for his expended labor.

The economic effect does not correctly reflec the expenditure of labor and therefore the remuneration by no means accurately conforms to the economic law of distribution according to wo

Why then is the economic effect taken as a cri terion of expended labor and a measure of consumption?

V. I. Lenin wrote: "Where distribution ... is c cerned one should not think only in terms of a ju distribution, but of distribution as a method, an instrument, a means of raising production." (18

If we consider the economic effect to be an in strument of this kind of distribution, then it is a wholly correct criterion of remuneration for inventions and rationalization suggestions. Moreover, the value created by the individual (in who or only the remunerated part of it) is not necessarily an equivalent of the labor given to society and its remuneration. Not only the quantity but also the quality of labor must be considered.

A distinguishing feature of inventive labor is t fact that it is assessed by society not so much a cording to its quantity as its quality.

The fact that labor, its quality and quantity, is the sole economic basis of remuneration for inventions under socialism, is generally recogniz in Soviet literature. (19) This view was first e pressed by N. A. Raigorodskii in 1932 (20) and reiterated by him many times in his subsequent work. True, while speaking of labor as the basi of remuneration, N. A. Raigorodskii refers to t quality and quantity not of labor itself but of its result, of the technical suggestion. He views th quality of a suggestion from the standpoint of it technical importance and the quantity from that its economic effect.

However, inventive labor — not its result — i not quantitatively determinate, in other words, quality cannot be calculated. The quantity of th labor has no criterion of measurement. It is in possible to determine accurately by means of e nomic effectiveness the quantity of expended la because it depends on the extent of the utilizati of the suggestion and the method of computing t saving it yields. Only that labor which the inve saves society can be measured quantitatively, not the labor expended by the inventor on creat his invention. And it is the latter that should c stitute the economic basis for remuneration un socialism. Only in individual cases is it possi to trace a certain relationship between the sca which a proposal is used and the quantity of inv tive labor expended on it. This relationship is tween the skill of the inventor (the labor he e pended previously) and the choice of the most

ective creative quests. A highly skilled inventor o is well acquainted with the given line of pro-ction and its needs will direct his endeavors along ine that will yield the highest economic effect. However, the quality of inventive labor can be imated by the technical-economic effect of the ggestion. By assessing the quality of the labor pended by the inventor, socialist society ap-ises the social value of this labor, the magni-e of which is determined by the degree of the so-l utility of the given labor.

Under socialism the utility of any labor, including entive labor, becomes objective and plays an im-tant part in production and distribution. "The lity of a thing is something purely subjective ... annot be determined, at least so long as people muddled by contradictions" (21) (My italics — N.). Marx wrote that in the future society, when ss antagonisms will have ceased, even the dis-bution of labor among the various branches of oduction "will be determined by the degree of ir social utility." (22)

When we speak of utility as a factor influencing amount of remuneration we should bear in mind so much the special utility, novelty, and degree easibility of the given invention as the utility of entive endeavor viewed as a labor activity. It is s effort that should be materially stimulated in a cial way. In socialist society labor should be luated according to its utility. (23) N. S. Khrush-v has emphasized this idea time and again. An should be put to situations in which individual entists behave like "free lancers," engage in tever interests them, not in production, and yet does not affect their incomes in any way. mples of such work by a number of scientists on staff of research institutes were cited at the e 1959 plenary meeting of the Central Commit-of the CPSU.

n order that the size of remuneration should to rger extent conform to the labor expended on the social utility of a given proposal, other in-s besides the economic effect must be con-ered in determining the remuneration, namely: technical level of the suggestion, its importance domestic industry, and how complete the sug-tion is.

he technical level of a suggestion (that is, ther it is an invention or a rationalization sug-tion) is of the greatest importance. Depending his level, suggestions yielding an identical sav-merit different amounts of remuneration. And greater the saving the wider is the difference veen these amounts. As stated above, the neces-y product should be the basis of the author's uneration. Under socialism, however, labor power is not a commodity and this fact makes for qualitatively different laws, as compared with capitalism, governing the formation of the necessary product. This is manifested, in particular, by the fact that the relative share of deductions into the social fund out of the value created by the inventor is determined by the degree of the social utility of the suggestion. The higher the technical level of a suggestion, the greater is the share of the economic effect assigned to the remuneration fund, the better is the innovator materially rewarded. Thus, for an invention yielding a saving of 6,000 rubles the inventor gets 970 rubles, while for a rationalization suggestion yielding a similar saving he gets only 500 rubles.

If, however, a suggestion is of special value to our domestic industry (if it dispenses with imports from capitalist countries, creates new lines of production, etc.) the amount of the remuneration, calculated on the basis of the economic effect and with due regard for the technical level of the suggestion, may be doubled.

The amount of remuneration may be trebled if a suggestion, although of great technical importance, does not yield any great economic effect because for reasons beyond the power of the innovator it cannot be used in mass production. In this case the influence of the scale on which an invention is applied is weakened, and this violates the principle of equivalence between the labor expended and the remuneration. In our opinion this is not enough. It is advisable to introduce reduced coefficients for those who for a small suggestion receive a large remuneration incommensurable with the labor put into it, and higher coefficients for suggestions with a relatively large saving in small-quantity production. For example, at Mosenergo today a suggestion yielding a saving of 11 kopeks per item may produce an economic effect of 25,000 rubles, while at any other enterprise, with single-item or small-quantity production, even a big improvement will not yield a substantial saving.

In contrast to the above instances of increased remuneration at the management's discretion, there are obligatory additional payments and benefits in remunerating labor.

It should be obligatory to increase remuneration to the extent that a suggestion is presented in completed form (submission of the technical project, working blueprints, an operating model, etc.).

The present article does not aim at presenting a comprehensive answer to the question of the economic nature of remuneration for inventions and rationalization suggestions. This problem requires serious study and discussion. It is clear, however, that its solution should proceed from the

fact that our inventors are one of the many groups of Soviet working people who are paid for their labor in accordance with its quantity and quality. And with regard to inventive labor, payment is not so much in accordance with its quantity as in accordance with its quality. By quality, especially with regard to inventive labor, we mean its special social utility.

Footnotes

(1) V. I. Lenin, Collected Works, Vol. 35, p. 476 (Russian edition).

(2) Published in SP SSSR, 1959, No. 9, Article 59.

(3) Computed on the basis of data of the Central Statistical Administration of the USSR and the Leningrad Economic Council.

(4) At the All-Union Conference of Inventors, Rationalizers and Production Innovators in October 1956, A. F. Garmashov, Chairman of the USSR Committee for Inventions and Discoveries, noted that some of the speakers in the debate took a wrong attitude to this matter (see verbatim report of the conference, Profizdat, 1957, p. 206).

(5) V. V. Kuibyshev, "The Problem of Inventive Endeavor," Izobretatel', 1929, No. 1, p. 56.

(6) N. S. Khrushchev, Control Figures on the Economic Development of the USSR for 1959-1965. Report delivered to the 21st Extraordinary Congress of the CPSU, Gospolitizdat, 1959, p. 62.

(7) N. A. Raigorodskii, Izobretatel'skoe pravo SSSR, Moscow, 1949, p. 204.

(8) From materials of the Technical Administration of the Leningrad Economic Council and the Technical Inventions Department of the Leningrad Metal Works.

(9) Calculated on the basis of data of the Central Statistical Administration of the USSR and the Inventions and Rationalizations Department of t Technical Administration of the Leningrad Eco nomic Council.

(10) Calculated on the basis of materials of rationalizations and inventions bureaus of the respective enterprises.

(11) N. S. Khrushchev, ibid., p. 115.

(12) V. D. Telnikhin, "On the Economic Natu of Remuneration for Inventions," Izobretatelstv v SSSR, 1957, No. 6, pp. 23-24.

(13) Izobretatel', 1929, No. 4, p. 4.

(14) Karl Marx, Theories of Surplus Value (Capital, Vol. IV), 1954, p. 331 (Russian edition

(15) Calculated from data of the Central Stat tical Administration of the USSR and respective economic councils.

(16) From materials of the Technical Admin tration of the Leningrad Economic Council.

(17) Calculated on the basis of data of the USSR Central Statistical Administration and the Leningrad Economic Council.

(18) V. I. Lenin, ibid., Vol. 32, p. 425.

(19) N. A. Raigorodskii, ibid., p. 199; B. S. Antimonov and E. A. Flieshits, Prava i obiazan nosti izobretatelei i ratsionalizatorov, Gosiuriz dat, 1959, p. 33.

(20) See N. A. Raigorodskii and K. Tagil'tse Ekonomia ot predlozhenii i voznagrazhdenie izobretatelei, Moscow and Leningrad, 1932, p.

(21) Karl Marx and Frederick Engels, Colle Works, Vol. I, p. 552 (Russian edition).

(22) ibid., Vol. IV, p. 97.

(23) N. S. Khrushchev, "On Strengthening the Ties of the School with Life and on Further Developing the System of Public Education in the USSR," Pravda, September 21, 1958.

***

Mirovaia Ekonomika i Mezhdunarodnye
Otnosheniia, No. 2, 1960

RYMALOV:

onomic Competition of the Two Systems and the Problem of

d to Underdeveloped Countries

he economic competition of the two systems entered a decisive stage. While socialism aims qualing and surpassing in the shortest historical iod the leading capitalist countries, it is at the e time fulfilling another task of paramount im- ance: that of fully liquidating in the near future discrepancies in the development of the coun- s forming the new world system by raising the l of the lagging countries up to the level of the e advanced ones.

his report to the 21st Congress of the CPSU . Khrushchev set forth and substantiated the emely important proposition that within the nework of the socialist sytem, due to fraternal ual assistance and close cooperation, all so- ist countries are afforded the opportunity of at- ing such a degree of development of their ma- al and spiritual forces that they will be able e or less simultaneously to achieve the transi- to the higher stage of communist society. The lution of the Party Congress on N. S. Khrush- 's report stated: "As the world socialist sys- continues to grow and become stronger, all the alist countries will develop successfully. The tries which in the past lagged economically now rapidly developing their economy and cul- , availing themselves of the experience of the r socialist countries on the basis of coopera- - and mutual assistance with them. Thus, the ral standards of economic and cultural develop- t of all the socialist countries are reaching a mon level, and the necessary conditions for sition from the first stage of communist society s second stage will be created at an increas- rapid rate." (1)

his is one of the basic laws governing the de- pment of the world socialist economy. It is cising a growing influence on the course of the omic competition of socialism and capitalism, h is the dominant factor in world history at stage. The disinterested fraternal aid extended by some countries to others speeds up the process of eliminating the economic and cultural backwardness inherited by many socialist countries from the capitalist era, and greatly accelerates the rate of progress of the new world economic system as a whole.

Under these conditions it is vitally important to analyze the trends of future development of the underdeveloped countries which are outside the socialist system. The significance of this question is emphasized by the fact that in the postwar period the overwhelming majority of these countries have become independent states.

Marxism-Leninism has comprehensively explained the inner economic laws governing the capitalist social system. It has demonstrated, and life has fully supported this conclusion, that the development of capitalism brings about a polarization of wealth and poverty, both within individual countries and on a world scale.

The fantastic disproportions between the social and economic standards of a handful of wealthy imperialist countries, on the one hand, and the vast mass of the destitute, underdeveloped, exploited countries, on the other, is the logical consequence of the prolonged development of the world capitalist economy which reached full maturity when it attained the stage of imperialism.

Repeatedly stressing this idea, Lenin pointed out that: "... the toilers should not forget that capitalism has divided the nations into a small number of oppressing, powerful (imperialist), privileged nations enjoying full rights, and an overwhelming majority of oppressed, dependent and semi-dependent nations." (2)

The objective economic laws of capitalism revealed by Marxism-Leninism continue to apply now as in the past within the considerably contracted boundaries of the capitalist world. The operation of these laws in the world capitalist market helps to maintain the conditions needed for the economic

exploitation of the weak countries by the strong ones, even when the former achieve political independence. Merciless suppression and ruthless exploitation of the weak by the strong always has been and still is the jungle law of capitalism. But this is also one of the principal factors impeding the development of the productive forces in the world capitalist economy, a factor which dooms capitalism to defeat in its world-wide competition with socialism.

However, in studying the prospects for the development of the contemporary world capitalist economy from the point of view of the struggle of the two systems, the bare analysis of the general inner laws governing the development of capitalism is no longer an adequate criterion. For instance, one cannot ignore the considerable changes that have taken place in the present position of the underdeveloped countries within the capitalist system compared with the position they occupied at a time when a handful of imperialist powers held absolute sway in the whole world.

The emergence of the socialist system struck an irreparable blow at imperialism, and this could not fail to have its effect on the development of the world capitalist economy as a system of enslavement and exploitation of weak nations by strong ones. The mere existence of a new world system, its readiness to extend the utmost aid to the underdeveloped countries in their efforts to achieve genuine national independence is exercising an increasingly far reaching effect on the position these countries occupy within the capitalist framework. The birth and vigorous development of the socialist countries has damaged the exclusive position of the imperialist powers in the world economy and brought about the collapse of their monopoly in the field of production of machinery and equipment, weapons and military supplies, technological know-how, as well as in respect to their absorption of the basic exports of the countries producing raw materials and farm products. This has created unprecedentedly favorable external conditions for accelerating the rate of growth of productive forces in the underdeveloped countries which have achieved national independence.

In turn, the emergence of new sovereign states in the East is having an increasing effect on the economic processes at work in the world capitalist economy. Achievement of political independence by the underdeveloped nations which account for the great majority of the population in the capitalist world is not an end in itself; it is in fact the only way out of the disastrous economic consequences of colonialist and imperialist exploitation.

***

The anti-imperialist struggle waged by the colonial peoples in order to achieve national indepe pendence and promote economic progress under conditions of coexistence and peaceful competitio of socialism and capitalism has brought to the fo of social life a number of new and important inte national problems which have to be thoroughly a scientifically analyzed and understood. One of them, which is acquiring added urgency and signi cance with each passing year, is the problem of aid to the developing economies of the underdeveloped countries.

This problem stems directly from the growing national-liberation movement and the socialist countries' support to the anti-imperialist strugg waged by the peoples of Asia, Africa and Latin America.

The socialist states' aid to the underdeveloped countries is a new form of international economi cooperation which is gradually restricting the im perialist powers' possibilities of exploiting these countries. The feverish efforts of monopoly capi tal to obstruct the extension of this aid miscarry time after time. Evidence of this is supplied by the growing number of agreements on economic and technical aid, as well as by the rapid expans of trade turnover between the underdeveloped co tries and the world socialist system. For exam the underdeveloped countries' trade turnover wi the Soviet Union during the period covering 1953 to 1958 increased more than sixfold. In the past five years the total of Soviet long-term credits other forms of aid for promoting the economic d velopment of non-socialist countries in Asia, Africa and Latin America have increased severa hundred times and now amount to several billion rubles. (See Table 1 on the top of the following page.)

Thanks to the aid of the Soviet Union and the other socialist states, some underdeveloped cou tries are already at work on many projects that are vitally important for advancing their industr and economy as a whole. These countries can s to the socialist states, on stable and mutually pr table terms, raw materials and other export co modities. In exchange, they can purchase indus trial equipment and any other commodity they n on very favorable terms to promote their inde pendent national development.

As this system of equitable cooperation and a is being strengthened, and as the process of bri ing up the lagging socialist countries to the leve of the more advanced ones proceeds, the ruling circles in the leading capitalist countries are realizing to an increasing extent the necessity taking into account the measures adopted by the

Table 1

Development of Soviet Economic Relations with Some Eastern Countries

Country	Trade turnover (in million rubles)				Soviet long-term credits (in million rubles)
	1955	1956	1957	1958	
Afghanistan	98.1	133.5	154.2	142.9	480
India	46.9	234.8	506.4	723.7	2,600
UAR	107.0	465.0	811.2	933.9	1,100*
Indonesia	15.3	52.3	101.5	155.0	400

* Credits to Egyptian Area of the UAR.

ialist states for the purpose of extending gen- economic aid to the underdeveloped countries. leaders of the capitalist states cannot afford gnore the fact that the underdeveloped nations not assuming control of their own destiny ely to vegetate in destitution for many years to e and to watch with equanimity how their wealth eing channeled into the safes of overseas opolies.

ddressing the Senate Foreign Relations Com- ee on July 18, 1958, John Foster Dulles com- ted on the irrepressible growth of the national ration movement in the East and remarked: is expanding political independence brought to peoples, who had vegetated for centuries in a e of utter poverty, new hopes that political ges would bring with them economic changes ell and open up better prospects for their eco- ic development." (3) British Prime Minister old Macmillan, at a meeting of the Royal In- rial Association on April 2, 1958, stated that he final analysis what will settle the issue will he set of ideas and principles which will ensure tter life to the ordinary people." (4) Com- ting on the talks held with the leaders of the tern Powers in anticipation of N. S. Khrush- 's visit to the United States, President Eisen- er stated: "We have reviewed the problems ing for the underdeveloped countries and the tries which have just come into being. More one billion needy people are demanding gen- improvements in the field of education, health living standards. One can observe among these le an understandable ferment, a profound dis- ent with their present lot, and an ever grow- resolve to better their fate." (5)

he march of events and the daily realities of are forcing the champions of modern capitalism to view with growing alarm the far-reaching social and economic processes maturing in the underdeveloped countries. The peoples of these countries are becoming more and more convinced that under capitalism they will not find a real way out of destitution and backwardness and the path to rapid economic progress.

In the prevailing situation, while the ruling circles of the leading capitalist states are seeking to perpetuate the exploitation of the wealth and manpower of these countries, they are at the same time forced to make certain concessions to a number of new sovereign Eastern states which are establishing close economic cooperation with the world socialist system. Faced with this cooperation and the disinterested aid extended by the socialist countries, the capitalist leaders are in certain cases compelled to grant those countries more favorable credit and trade terms and extend a measure of economic and technical assistance without imposing the usual imperialist oppressive military, political and economic conditions.

Commenting on the causes of certain new trends in the policies of the leading capitalist states toward aid to underdeveloped countries, N. S. Khrushchev stated: "This aid which the capitalist countries are planning to extend to the states which have recently won their independence should also be viewed as a particular kind of Soviet aid to these states. If the Soviet Union did not exist is it likely that the monopolies of the imperialist powers would aid the underdeveloped countries? Of course not. This has never happened in the past." And as the Soviet Premier pointed out, the underdeveloped countries cannot view this "free" aid uncritically, overlooking the fact that the capitalist monopolies are striving and will continue to strive to take advantage of such aid to achieve their imperialist aims. (6)

In the past few years the Western Powers have begun to allocate some funds out of their state budgets to the new sovereign states of the East for the development of their economies. India is one of the few states which is receiving such aid on less usurious terms than the majority of other underdeveloped countries. Indian press reports indicate that in line with the agreement signed with the US Government, India has received several billion rupees worth of loans, credits and subsidies, more than half of which were earmarked for financing food imports. (7)

For a long period of time the Western Powers refused India any financial aid for the development of her key industries. But when the Soviet Union agreed to aid India they were forced to revise their policy in this field. India was the first underdeveloped country which succeeded, thanks to the growing assistance of the Soviet Union and the other socialist countries, in obtaining Western credits for the launching of several state projects in metallurgy and other basic industries.

For instance, Britain agreed to grant India financial and technical aid for the construction of the iron and steel works in Durgapur only after the Soviet Union had launched the construction of the Bhilai metallurgical project. Mr. H. Ayengar, chairman of the Indian state bank, commented on this occasion that "the interest Western Europe is displaying in India grows in proportion to the extension of India's business ties with Russia." (8) Economic relations with the socialist countries are improving the position of the underdeveloped countries in the world capitalist market. A characteristic admission of this has been voiced by the London Economist, which remarked: "Were it not for the communist bloc, at best Asia and Africa would have more difficulty in maintaining trade relations with the West." (9)

Even the American ruling circles, who until recently flatly refused to help finance industrial development in India's state sector, at least had to beat a retreat. Thus, at the end of 1958, the Loan Development Fund granted India a $100 million credit for financing several projects. Of this sum, $63 million went to the state sector and $37 million to the private sector. (10) The Hindustan Times reported that at the end of 1959 the United States offered India financial and technical aid for the construction of a new iron and steel plant with an initial capacity of 1,250,000 tons a year.

Even at an earlier stage the International Bank for Reconstruction and Development, which is controlled by the United States, had to agree to certain concessions in this sphere. By July 31, 1959, it had allocated India loans amounting to $390 million for carrying out a number of projects in the stat sector. (11) Afghanistan, Indonesia, Ceylon, an few other countries also have received from the Western powers a number of loans in the past fe years on relatively more favorable terms than i former times.

Obviously, the above does not at all mean that the two systems' competition is modifying the na ture of monopoly capital and of the world econon ic system it has built up. Genuine aid of one gro of countries to another is alien to the very natur of capitalism. Some of the steps taken by the le ing capitalist states in this direction should, in fact, be regarded as the result of the influence which the aid extended by the socialist states to underdeveloped countries (Soviet aid in the first place) is exercising on the international economi relations within the world capitalist system.

Remarking that in the absence of economic co operation between the underdeveloped countries and the Soviet Union the leading capitalist states would continue their former practice of indiscri nately plundering these countries, Soviet Vice Premier Anastas I. Mikoian went on to say: "If we stop to think of it, it will not be difficult to ar rive at the conclusion that this change in the rel tions of the capitalist states with the underdeveloped countries is, in fact, an indirect but a ve substantial assistance to these countries on the part of the Soviet Union." (12)

Such is the objective trend in the development these relations, so unusual under capitalism, tha the steadily growing economic strength of the so cialist camp headed by the Soviet Union and the further extension of equitable cooperation in all fields of activity between the socialist and under developed countries will compel the leading capi talist states to make more and more concession to the underdeveloped countries.

There is another important circumstance that should be borne in mind. At present, owing to t growing solidarity of the Eastern peoples and th fact that in their anti-imperialist liberation str gle they can rely on the tremendous economic a political potential of the world socialist system, imperialism no longer enjoys its former freedo of action. It now has fewer practical possibiliti of launching colonial wars or of resorting to ec nomic blocades against former colonial and de- pendent countries. The developments in a numb of Asian areas in the past few years have suppli convincing evidence that the imperialist powers cannot any longer embark on full scale colonial adventures against new sovereign states without meeting with the firm resistance of the united forces of socialism and the world national-

beration movement, without taking a chance of rovoking another world war. With the existing elation of forces on the international scene, the olonialists cannot fail to understand that a war of at kind might have fatal consequences for them. the existing situation, whether they want to or ot, the imperialists have to reckon with the fact at military power is no longer a decisive factor their relations with formerly colonial and de-endent countries.

As matters stand, since socialism is no longer onfined within the boundaries of one country but as grown into a rapidly developing world system, nce the task of completely doing away with colo-alism and its consequences has been placed on the rder of the day in the most pressing manner, aid r promoting the economic advancement of under-eveloped countries constitutes a complex set of osely related international problems which in-udes the following factors: 1) aid extended by the ading socialist states to the underdeveloped coun-ies of the world capitalist system in their anti-mperialist struggle to achieve independent eco-omic development; 2) economic aid extended by e leading capitalist powers to the colonial and oth- underveloped countries as a means of offsetting e aid of the socialist states, of safeguarding their vn positions, and of enhancing the waning prestige capitalism in those countries.

This, of course, does not mean that one should together discount the danger of a possible im-erialist venture in some area of the colonial world. his danger will be removed only when imperial-m itself disappears, for the existence of im-erialism hinges on the explitation and oppression the backward countries.

Although the economic competition of the two sys-ms compels the imperialist powers to aid under-eveloped countries, this has not modified their na-re — they are merely seeking to adapt themselves a new situation. If one wishes to obtain a clear cture of the actual relations between those coun-ies, one need only compare the amount of aid anted by the capitalist states to the underde-loped countries with the size of the tribute the tter have to pay to the former as ransom for eir backwardness.

Official American data show that the loans and edits granted by the USA as non-military aid to e Latin American countries over the period of 51-1957 totalled $1,015 million; (13) net exports capital from that area, on the other hand, nounted to $2,350 million according to United Na-ns data. (14)

Another significant fact in this respect is that e losses incurred by the underdeveloped countries from the 1957-1958 economic crisis that swept the USA and a number of other industrial powers have reduced to nought the economic aid received by many countries from the West over a period of several years. The imperialist monopolies have forced the backward nations to foot the bill of the last crisis.

The figures cited in the United Nations World Economic Survey 1958 show that during the period of maximum recession of industrial activity in the United States the prices of export commodities in the underdeveloped countries and the incomes which these countries derive from exports dropped by 7 to 8%. The survey points out that this drop, which was accompanied by a continuous rise in the prices of imported manufactured goods, "meant a loss in the total volume of imports amounting to approximately the sum total of the loans granted by the International Bank for Reconstruction and Development to the underdeveloped countries over a period of six years." (15)

The incomes of the South-East Asian countries from exports of agricultural produce and raw materials declined to a still greater degree. During the first nine months of 1958 they declined by 11% compared to the corresponding period of 1957. (16) The result was that due to declining prices of export commodities and reduced demand for raw materials the losses suffered by many countries in that area exceeded the total amount of loans received from capitalist powers on the basis of bilateral agreements over a period of several years. One can derive a general idea of this trend from Table 2.

But intensified plundering of the underdeveloped countries by the capitalists in times of economic crises is only one of the many methods used by the Western monopolies to exploit these areas and drain them of much more wealth than these monopolies provide. Unfair exchanges, excessive returns from investments, and the predatory nature of the exploitation of natural resources and manpower remain now as in the past the principal sources of the super-profits reaped by the imperialist powers and monopolies in the underdeveloped countries. (17)

In this particular case we are considering only the aid which is directly related to the economic competition of the two world systems. Meanwhile it should be borne in mind that the ruling quarters in the leading capitalist countries are continuing to give priority not to economic aid as an element of the competition of the two world systems, but to aid for various military schemes calculated to serve the purposes of various monopoly-capital groups of using such "aid" for covering up their efforts to

Table 2

South-East Asian countries: Fluctuation of Export Income in Relation to Total of Loans and Credits Granted by the West for Economic Purposes in 1954-1957*
(in millions of dollars)

Countries	Income from exports		Difference in income	Sum total of subsidies and credits received during 1954-1957
	9 months 1957	9 months 1958		
Burma	192	151	- 41	6.2
Ceylon	277	259	- 18	21.3
Malayan Federation and Singapore	1,019	905	-114	20.4
India	1,031	885	-146	249.8
Indonesia	677	527	-150	31.9
Total	3,196	2,727	-469	329.6

* Statistical Yearbook 1958, UN, New York, p. 398; Economic Survey of Asia and the Far East 1958, p. 22.

intensify colonial expansion and achieve their aggressive and selfish aims. Such undertakings, which to this day absorb the lion's share of the funds allocated through programs of "aid" to underdeveloped countries by the imperialist powers, are among the principal obstacles to the development of the productive forces of the underdeveloped states in the capitalist world, and by the same token they further weaken the position of the capitalist system in the competition with the socialist system.

***

We know from history that the outcome of the struggle between different social and economic systems is determined in the final analysis by the system which at the given stage of development offers more favorable conditions for the growth of the productive forces of society. This was indeed the reason why capitalism defeated feudalism. It is, moreover, a fact that when social groups of exploiters were struggling for supremacy, the problem of the well-being of the popular masses was not and could not be raised. On the contrary, the development of these social structures was based on intensified exploitation and plundering of the actual producers of material values.

All capitalism needed in order to triumph on a world scale was to ensure a rapid rate of growth of the productive forces in just a few countries. As for the overwhelming majority of the countrie as Lenin aptly remarked, they were converted in civilization's fertilizer, becoming the colonial slaves of a handful of imperialist powers. These powers' rapid economic advance was to a large e tent achieved by means of indiscriminate exploit tion and obstruction of the development of the co tries which were by-passed by capitalist civiliza tion. Only a relatively small number of countrie succeeded in achieving a high rate of developme of their productive forces on the basis of the cap talist mode of production. For instance, the lea ing capitalist states which have less than one-th of the capitalist world's population account for close to nine-tenths of total capitalist industrial production. The United States alone produces about five times as much industrial output as all the underdeveloped countries which account for two-thirds of the capitalist world's population.

While in the world socialist system the proce of eliminating the disparity in the economic development of different countries is continuously

ork, the opposite is the case within the capitalist stem. This situation is a cause of serious alarm the defenders of modern capitalism. Prof. Gunr Myrdal, the Swedish economist, remarks that e underdeveloped countries are not going to connt "to a course of world development which will ave them poor, or as was recently the case in rtain parts of the world, a course which will ake them even poorer while the wealthy countries e becoming still wealthier." (19) The more alistically minded partisans of the dying social der are compelled to consider these developents from the point of view of the competition of e two systems. Walter Lippman wrote in the New ork Herald Tribune: "I would like to define the ason why, in the present state of affairs, the est is losing and the communists are winning the mpetition in the underdeveloped countries. The ain reason is that the advanced, industrialized stern countries in North America, Western rope and Australia are enriching themselves, ile the poorly developed countries which are not thin the communist orbit are continuing to exrience extreme want and are making very slow ogress." (20)

This alarm for the fate of capitalism in the unrdeveloped countries is entirely justified. The ta of the UN World Economic Survey 1958 supply e evidence that in the past few years in the world pitalist economy the gap in the levels of ecomic development between a relatively small oup of industrially advanced countries and the k of countries producing raw materials and agritural commodities, far from narrowing, on the ntrary is continuing to widen to a certain extent.)

However, unlike natural laws, the laws of social velopment do not and cannot operate independent- without the participation of men — the actual kers of history. At the time when capitalism joyed absolute supremacy, before the emergence the socialist system, only the insignificant porn of mankind living in the "advanced" capitalist ntries exercised a decisive influence on the rch of history. On the other hand, the hundreds millions of people inhabiting the colonial and pendent countries played an insignificant part in conscious shaping of history. Still, this was ject to change. Karl Marx discovered and scifically explained the law of the growing role of masses in historical development, a law which extremely important for understanding the pres-day situation in the East. Marx stressed that more far-reaching the social transformations, larger is the mass of people consciously parpating in this process; and conversely, the larger the mass of people actively taking part in the making of history, the more far-reaching are the social transformations and the more rapid the rate of social progress.

Lenin pointed out that "as the creative historical activities of men increase in breadth and depth, there must be a corresponding increase in the masses of the population which are conscious makers of history." (22) Elaborating on this concept with reference to the anti-imperialist movement of the colonial peoples, Lenin said: "After the period of the awakening of the East, the present-day revolution is ushering in a period in which all the peoples of the East are taking part in deciding the world's fate, not remaining a mere source of enrichment. The peoples of the East are awakening to practical activity, so that each people may pass decisions on the fate of mankind as a whole." (23)

The stormy process of disintegration of the imperialist colonial system shows that the period anticipated by Lenin has already set in. In the course of the national-liberation movement, under the influence exercised by the growing success of socialism in its competition with capitalism, even the most backward and oppressed nationa are drawn into conscious activity in the shaping of history.

This is precisely the reason why the problem of overcoming the economic lag of the less developed countries is so important today. Under these circumstances the level of development of the productive forces in the advanced countries is not the only decisive yardstick in evaluating the progress of the economic competition between two opposed systems; just as important is the actual possibility of eliminating economic backwardness within an entire given system.

At present, due to the successes scored by socialism, great significance is attached to the question of which social system is in a position to ensure that the benefits accruing from the development of the productive forces are used for the good of the popular masses.

The system that will triumph in the economic competition of capitalism and socialism is the one that will be able to provide for all the nations without exception more goods, higher living standards, and peaceful, harmonious progress.

This is bound to raise the following question: in the light of the historic contest of the two social and economic systems, how should we view the economic aid extended by the socialist states to underdeveloped countries in the other social system. This aid already involves considerable outlays of the material resources of socialism.

The disinterested aid extended by the socialist system to underdeveloped nations, without any political strings attached, is an expression of the humane essence of socialism and of its sincere concern for the genuine progress of those nations. Because of its very nature, socialism cannot be indifferent to the interests of the economically backward countries. The socialist states are interested in establishing with them a form of economic cooperation that will help the development of their productive forces in every possible way and that will fully correspond to the interests of these nations.

The socialist states' rapid economic progress, which has the aim of improving the living standards of all socialist countries, is bound to exercise a certain influence on the position of the masses in the non-socialist countries. This objectively inevitable result of the economic competition of the two systems opens new vistas for the struggle waged by the peoples in the capitalist world, especially in the underdeveloped countries, in order to improve their position and at a later stage to adopt a more progressive social system.

It follows that the progress achieved by the socialist states in the economic field and in improving the living standards of the people exercises a definite effect beyond the boundaries of the socialist system. In essence these successes may be viewed as an achievement of the working people of the whole world. They help to create favorable conditions for intensifying the struggle of the masses in the non-socialist countries for their rights and at the same time they check the tendency of foreign monopoly capital to intensify the exploitation of underdeveloped countries. Even now one can hardly overestimate the influence exercised by this indirect result of socialist successes on the social and economic processes in the world capitalist economy, and first and foremost in the former colonial and dependent countries.

As the peaceful competition of the two systems proceeds, an increasing number of nations in the capitalist world get an opportunity to benefit from the economic gains of socialism. This is achieved mainly through equitable trade and other economic relations between countries with different social and economic systems. Close ties with the world socialist economy, which is not subject to periodic recessions and crises of over-production, can have a positive effect on the level of employment in the non-socialist countries. In fact, this is the case at present in some underdeveloped countries where the above-mentioned relations are helping to alleviate, to a certain degree, the disastrous consequences of the economic crises that are inevitable under capitalism.

A recent UN report on the world economy poi out that economic relations with socialist countr during the world crisis in 1957-1958 had a favor able effect on the economies of India, Indonesia, UAR and certain other underdeveloped countrie

The survey stated: "In the past few years the countries with a centralized planned economy ha signed a number of bilateral agreements with ce tain countries producing raw materials, and this has led to a substantial increase in the latter co tries' exports. In a period of depression in the world market, such agreements, by providing fo the exchange of a fixed volume of commodities firm prices have a stabilizing effect on the exporters of raw materials. An important advanta of these agreements is that they give these state the opportunity of trading surplus commodities producer goods." The survey also pointed out the credits granted by the socialist states to a number of underdeveloped countries acted as a stimulating factor in the export of raw material and "have not only created a favorable situation for the current exchange of raw materials for manufactured goods supplied by the countries w a centralized planned economy, but may also exc cise a good deal of influence on future exports t these countries." (24)

Unrestricted development of trade and other economic relations between states with differen social and economic structures is also a highly important condition for peaceful coexistence. These relations provide the best foundations for eliminating international tensions and ending the arms race. As a result the world will be afford unprecedented opportunities for improving the of all nations. Implementation of the program universal and complete disarmament proposed the Soviet Union would make it possible to alloc for constructive purposes vast material and fin cial resources which at present are being expe for producing means of destruction, and this wo also be of tremendous importance to the underdeveloped nations.

Addressing the USSR Supreme Soviet on Janu 14, 1960, N. S. Khrushchev declared: "We said in the past and we say it again, if agreement on complete and universal disarmament is reached huge funds will be released which could be used rendering much more assistance to all economi cally underdeveloped countries."

It stands to reason that the expansion of mutu profitable economic relations between socialist non-socialist states helps to reduce internation tensions and is to the advantage of all nations. Further extension of these relations will help t create favorable conditions for achieving a mo

pid growth of productive forces and will promote e non-socialist nations' efforts to improve their ving standards.

This has a direct bearing on the many-sided eco- mic aid rendered by the socialist states to the derdeveloped countries. It is the socialist states' licy to extend to the utmost the amount of this aid. ne peoples of the former colonies and dependent untries which do not form part of the world so- alist system are given every opportunity of mak- g use of that system's economic achievements for rthering their struggle for national independence. nd as the socialist system grows in strength these portunities will steadily increase. This is an- her manifestation of the indissoluble ties and ose alliance necessarily linking the national- eration and world proletarian movements in the a of transition from capitalism to socialism on a obal scale.

It is quite obvious that the economic aid rendered the socialist countries strengthens the position the new sovereign states of the East in their ruggle against imperialist monopoly capital. This an important objective factor conducive to the ex- nsion and strengthening of economic relations be- een the socialist states and the countries which ve entered on the road of independent capitalist velopment in the era of the two systems' co- istence.

Long before the world socialist system came into ing, the founders of Marxism-Leninism who were rking out a proletarian international policy clear- stated that any attempt on the part of the victori- s working class to take advantage of the back- rd nations' need for foreign help by imposing on em from the outside a new, advanced social or- r, would ultimately only damage the cause of the rld socialist revolution and undermine the endly relations among peoples which are essen- l for the victory of the working class. Frederick gels pointed out in this connection how much to advantage of the working class of the advanced ntries it would be "to bring independence as idly as possible" to the colonial countries; and went on to say: "One thing is unquestionable: victorious proletariat may not force happiness n any foreign people without undermining by the me token its own victory." (25)

t is the international duty of the victorious work- class of the socialist countries to help the derdeveloped nations to completely destroy the ers of national and colonial subjection, and to port in every possible way their anti-imperial- struggle and their right to an independent na- nal status which, under capitalist conditions, is onceivable without economic independence.

For many years the peoples of the underdeveloped countries have experienced the more abhorrent aspects of capitalist "civilization." In the course of the economic competition of the two systems the logic of events will lead them to the conclusion that the socialist road to progress is unquestionably superior. Here is what N. S. Khrushchev had to say on this score: "Communism will win, but not in the sense of any conquest by the socialist countries of other countries. No, the people of each country will themselves weigh all the facts, and when they come to understand correctly the essence of the Marxist-Leninist teaching, they will voluntarily choose the more progressive form of society." (26)

***

The aid rendered by the Soviet Union and the other socialist countries is exercising more and more influence on the struggle waged by the underdeveloped countries against the dominance of foreign capital, for genuine independence. Each new victory which socialism scores in the economic competition with capitalism, leading to a shift in the relation of forces between the imperialist camp and the world socialist system, creates every more favorable conditions for the progress of the national-liberation movement in the underdeveloped countries. This is one of the essential features of the historical period of coexistence and competition of the two opposite world social and economic systems.

The Soviet Seven-Year Plan (1959-1965) of economic development endorsed at the 21st Congress of the CPSU opens up broad new prospects for strengthening friendly cooperation between the underdeveloped countries and the world socialist system. Successful implementation of this program and of the economic plans of the other socialist countries will mark an important stage in the struggle for a better future waged not only by the socialist nations but by all the peoples of the world.

The world socialist system is laying the foundations of a new world economy in which the characteristic capitalist relations of subjection and exploitation of the weak countries by the strong ones will be abolished for all time, giving way to relations of genuine equality of rights and mutual assistance among the nations.

The ever increasing aid extended by the socialist states to the underdeveloped countries is bound to play an important part in creating this world-wide economic system.

Footnotes

(1) Extraordinary 21st Congress of the CPSU,

January 27-February 5, 1959, Stenographic Report, Vol. II, Moscow, 1959, p. 447.
(2) V. I. Lenin, Collected Works, Vol. 30, p. 269 (Russian edition).
(3) The Department of State Bulletin, August 11, 1958, p. 239 (retranslated from the Russian).
(4) The Times, April 3, 1958 (retranslated from the Russian).
(5) The New York Times, September 11, 1959 (retranslated from the Russian).
(6) Pravda, December 30, 1955.
(7) The Hindustan Times, September 26, 1959.
(8) Times of Indonesia, February 27, 1957 (retranslated from the Russian).
(9) The Economist, February 14, 1959 (retranslated from the Russian).
(10) Statesman, December 26, 1958.
(11) The Eastern Economist, September 4, 1959.
(12) Mezhdunarodnaia Zhizn, 1958, No. 8, p. 8.
(13) Statistical Abstract of the United States, 1958, p. 873.
(14) Economic Survey of Latin America 1957, UN, New York, 1959, p. 52.
(15) World Economic Survey 1958, UN, New York 1959, p. 7 (retranslated from the Russian).
(16) Economic Survey of Asia and the Far Ea 1958, UN, Bangkok, 1959, p. 20.
(17) For details on this see: V. Kollontai, "I perialist Profits from Exploitation of Underdeveloped Countries," and G. Rudenko, "Causes of Economic Backwardness of the Eastern Peoples (Mirovaia Ekonomika i Mezhdunarodnye Otnosheniia, 1959, Nos. 6-7).
(18) Monthly Bulletin of Statistics, UN, Janua 1958.
(19) Gunnar Myrdal, Mirovaia ekonomika. P lemy i perspektivy, Moscow, 1959, pp. 220-221.
(20) New York Herald Tribune, January 1, 1959.
(21) World Economic Survey 1958, UN, New York, 1959, p. 17.
(22) V. I. Lenin, ibid., Vol. 2, p. 391.
(23) ibid., Vol. 30, p. 139.
(24) World Economic Survey 1958, UN, New York, 1959, pp. 165-166 (retranslated from the Russian).
(25) Karl Marx and Frederick Engels, Collected Works, Vol. 28, pp. 238-239 (Russian edition).
(26) Pravda, January 15, 1960.

Mirovaia Ekonomika i Mezhdunaroc
Otnosheniia, No. 3, I

V. TIAGUNENKO:

Principal Structural Changes in the Economies of Underdeveloped Countries

New tendencies, reflecting profound economic and political changes in the world arena, appeared in the postwar development of the capitalist world economy. The falling away of a number of countries in Europe and Asia from the capitalist system, the formation of the socialist world system, and the breakdown of the colonial economic structure, have led to a crisis in the structure of the entire capitalist world economy.

The capitalist world economy, with its unity formerly based on the subordination of pre-capitalist forms of production to the interests of finance capital, is undergoing a period of profound internal changes. Long established economic ties and tl nature of relations between the separate parts the world economy are changing, and important structural changes are taking place in the econ of many countries. New world economic relati and a new specialization in the international di sion of labor are being established. These cha are at work not only in most of the economicall underdeveloped countries, but to one or anothe degree also in the industrially developed capita countries.

The upsurge of the national-liberation strugg and the downfall of the colonial empires have

sturbed the "normal" (for the world capitalist onomy) division of countries into metropolitan d colonial countries, masters and objects of im- rialist exploitation. Having won national inde- ndence, the underdeveloped countries are strug- ing to change the colonial structure of the econ- ny which had been foisted upon them and to estab- sh new world economic relations. This is under- ining from within the foundation of the capitalist stem of world economy.

In this article we shall only deal with the more portant changes which have taken place in the te and structure of industrial production in the onomically underdeveloped countries and only to e extent that these changes were due to the disin- gration of the colonial system.

Rates of Industrial Development of the Underdeveloped Countries

The dynamics of the industrial development of pitalist countries in the fifties, that is, in a pe- od in which the bulk of the former colonies were ready sovereign states, show that the rate of in- strial development in the underdeveloped coun- ies has gone up appreciably. Thus, between 1950 d 1957 (we are leaving out 1958 because it was a ar of crisis) production in the capitalist world se by 42%, industrial output in Western Europe se by 55%, in North America by 29%, in Latin nerica by 45%, and in East and Southeast Asia cluding Japan) by 134%. (1) These UN figures a certain extent distort the general picture of dustrial development of the backward countries Asia since the general indexes include Japan. e latter accounts for nearly 46% of the total in- strial output of that area. (2) Moreover, the pe- od taken for analysis coincides with the highest e of development of Japan's industry. Between 50 and 1957 Japan's industrial output almost pled, (3) and this of course could not but affect general index of industrial output of the entire ea. But even if we take this fact into account it apparent that the rates of industrial develop- nt of the backward countries of Southeast Asia ceeded those of Western Europe and North nerica.

The accelerated rates of growth have made it ssible to build up output and thereby increase share of the underdeveloped countries in the put of the capitalist world. Today, as can be en from Table 1 (shown on the following page), difference in the output ratios (or the so- led relative gap) between the two groups of ntries is approximately 9:1 for total industrial put, 4:1 for extractive industry, and 9:1 for the manufacturing industry. For a material change in these output ratios to occur a considerable differ- ence is necessary in the rates of reproduction in favor of the underdeveloped countries over a fair- ly long period.

In the postwar years the general rate of indus- trial growth in the underdeveloped countries has on the whole been somewhat higher than in the group of industrially developed capitalist states. How- ever, the difference in the rate has remained in- significant. From 1948 to 1957 the share of the underdeveloped countries in the output of the capi- talist world went up from 8.7% to 10.5%. These figures, based on estimates of the UN, are very approximate but they show that while the relative gap between the underdeveloped and industrially developed countries has not become narrower, at least it has not widened.

Here we are referring merely to the narrowing of the relative gap in the level of output. As re- gards what is called the absolute gap, at the pres- ent stage it continues to widen. In this case a simple predominence in the rate of reproduction is not enough, for even with a high rate of repro- duction in the underdeveloped country and a rela- tively low rate in the developed country each per cent of increase by no means represents equal absolute amounts.

The relative gap, or the difference in the pro- portions of output, is narrowed by any rise in the rate of growth of underdeveloped countries com- pared to industrially advanced states, but the abso- lute gap between output volumes narrows only where the ratio between the rates of growth is in- versely proportional to their level. Where the ratio of output volume is 9:1 the rate of industrial growth of the backward countries must be more than nine times higher than that of the industrially advanced states. Only in such a case will the abso- lute increase of output in the underdeveloped coun- tries be greater than the increase in the de- veloped countries and the absolute gap reduced.

Today the ratio of the rate of growth of the backward countries to that of the industrially ad- vanced countries does not exceed 1.5:1, in other words, it is obviously less than the inverse pro- portion of their levels (9:1), and for this reason the question can only be that of increasing the share of the underdeveloped countries in the output of the capitalist world. With such a ratio between the rates of development of the two groups of countries the difference between the absolute amounts of their output will keep increasing for a rather long time to come.

The poor development of statistical accounting or its almost complete absence in most of the

Table 1

Changes in the Relative Shares of Output in the Capitalist World After World War II: Industrialized vs. Underdeveloped Countries (in %)*

	Years	Extractive and Manufacturing industries	Extractive Industry				Manufacturing Industry					
			Total extractive industry	Coal	Metal mining	Oil and natural gas	All manufacturing industry	Food, beverages and tobacco articles	Textiles	Chemicals	Iron and Steel	Machine-Building
Developed capitalist countries	1948	91.3	77.2	90.5	54.4	76.9	91.0	85.9	83.6	89.1	95.8	96.0
	1953	90.3	74.8	94.5	53.4	69.7	91.9	84.7	84.3	90.4	94.6	96.4
	1957	89.5	81.0	94.3	51.2	56.2	89.9	83.8	83.1	88.2	93.4	97.4
Underdeveloped countries**	1948	8.7	22.8	9.5	45.6	23.1	9.0	14.1	16.4	10.9	4.2	4.0
	1953	9.7	25.2	5.5	46.6	30.4	8.1	15.3	15.7	9.6	5.4	3.6
	1957	10.5	19.0	5.7	48.8	34.8	10.1	16.2	16.9	11.8	6.6	2.6

* Calculations made by Z. V. Dudnik, S. M. Likhonina and V. A. Sandakov, Scientific Workers of the Institute of World Economy and International Relations, on the basis of UN statistical data and the Japan Economic Year-Book.

** Including Union of South Africa and the countries of Oceania.

erdeveloped countries does not permit us to ce more or less accurately the changes occur- g in the output of the capitalist world as a single nomy. However, even the very meager esti- tes available make it possible to identify some he tendencies which have arisen or which have ome particularly apparent in the postwar years. irst of all it should be noted that the average ual rate of growth in output in a number of nches of the economy in Latin America and in ost all branches in Southeast Asia has been her than the average annual rate in North Amer- and Western Europe.

n Southeast Asia the rate of industrial develop- nt has been the highest. However, as noted ve, an analysis of the development of the indi- ual branches in that area is difficult because the eral indexes include figures for Japan, and this tainly distorts the real picture. (4) There are consolidated data covering the underdeveloped ntries of Southeast Asia.

Vhile the share of the underdeveloped countries he production of coal has declined considerably, as gone up in metal production and now amounts nearly half of all metal mined in the capitalist rld. The share of the underdeveloped countries he output of oil and natural gas has risen chief- n Africa and the Near East. The share of these as has increased from 3.7% to 14% of the capi- st world's output. (5)

n the branches of the manufacturing industry the re of the underdeveloped countries has in- ased only in the output of foodstuffs, beverages, to- co articles and in the paper industry. Their re also rose in the iron and steel industry, but he other branches of industry the share of this up has continued to decline. This, of course, s not mean that the other branches have not de- oped. On the contrary, in many cases they have eloped at a higher rate that the extractive in- ry, but not enough to materially affect the share ne underdeveloped countries in the output of the italist world. A good illustration is steel pro- ion. By 1956 steel output in the underdeveloped ntries of Asia, Africa and Latin America had ctically quadrupled compared with 1939, with ut in the three years from 1953 to 1956 increas- by more than 40% and the increase for 1956 e almost equalling total output on the eve of ld War II. Nevertheless, the share of these ntries in the output of the capitalist world has eased little as yet. In other words, while the of increase in the production of steel in the erdeveloped countries was double that of the strial countries of the capitalist world, the ab- te increase was only one-twentieth. (6)

Many branches of industry in the underdeveloped countries of Southeast Asia have grown rapidly and this has had an appreciable effect on the rise of their share in the capitalist world's output. Increases have been observed in practically all branches of industry except machine-building, which is still only emerging and in but a few countries at that. The extractive industry has developed less rapidly than the manufacturing industry. The share of these countries in metal production increased by 16%, in oil and gas extraction by roughly 30%, and in coal mining by nearly 50%. The share of the manufacturing industries went up considerably more: in the textile industry it rose by 20%, in the food industry by 30%, in the paper and iron and steel industries by 40%, and in the chemical industry by 100%. Only in the machine-building industry the share of these countries remains unchanged. (7)

The growth of industrial production in the underdeveloped countries of Southeast Asia, particularly in the manufacturing industry, reflects the intensifying struggle waged by their peoples for their economic independence. This applies first of all to the peoples of India, a country which accounts for some 60% of the total industrial output of the underdeveloped countries in that area. In Latin America, where the general rate of development has been relatively low, the average annual rate of increase of total industrial output has been even lower than in the capitalist world as a whole. However, branches of heavy industry such as chemicals, iron and steel, and non-metallic minerals, have developed fairly rapidly. The iron and steel industry, just emerging, has had a stable growth and in postwar years its output has increased by more than 70%; the processing of non-metallic minerals has almost doubled, a considerably higher rate of growth than that of these branches of industry in the United States and Canada. The extractive industry, with an output amounting to more than 10% of the total output of the extractive industry of all capitalist countries, grew 1.5 times more rapidly than in Western Europe and 2.5 times faster than in the United States and Canada. In a word, the Latin American countries still serve as an important source of raw materials for the North American monopolies. (See Table 2 on p. 56.)

The economically backward countries, being a component part of the capitalist system of world economy, developed between 1948 and 1957 against the general background of a cyclical expansion in industrial output of the capitalist world. This, of course, left a certain imprint on the nature and rate of their economic development. But it is not merely a matter of the nature of development of

Table 2

Dynamics of Industrial Output in Capitalist Countries Between 1948 and 1957*

	Extractive and manufacturing industries	Extractive Industries					Manufacturing Industries						
			of which				of which						
		all extractive industries	coal	metal production	oil and natural gas	all manufacturing industries	food, beverages and tobacco articles	textile	paper-making	chemicals	non-metallic minerals	iron and steel	machine-building
Capitalist World:													
Output Increase in %	61.6	46.9	9.4	49.4	75.0	61.6	40.7	30.6	71.6	103.0	82.6	64.4	35.7
Average annual increase in %	5.4	4.3	1.0	4.6	6.4	5.4	3.9	3.0	6.2	8.1	6.9	5.7	7.1
North America:													
Output increase in %	39.0	28.4	-23.4	19.6	52.6	39.5	12.9	-6.9	49.4	64.4	61.8	24.7	65.1
Average annual increase in %	3.7	2.8	- 2.9	2.0	4.8	3.8	1.4	-0.8	4.6	5.7	5.4	2.5	5.7
Western Europe:													
Output increase in %	94.1	45.5	25.9	104.7	744.0	98.5	74.3	50.6	105.9	166.7	92.6	131.3	122.2
Average annual increase in %	7.6	4.2	2.5	8.2	26.8	7.9	6.4	4.7	8.3	11.5	7.5	9.7	9.2
Latin America:													
Output increase in %	56.0	84.8	47.4***	34.1	80.3	48.2	48.7***	17.2***	64.6***	72.3***	95.5***	70.3***	...
Average annual increase in %	5.1	7.0	5.0	3.7	7.6	4.5	5.1	2.0	6.4	7.0	8.7	6.9	...
Southeast Asia:**													
Output increase in %	173.7	75.4	52.7	91.8	120.0	192.7	134.5	125.4	520.7	400.0	257.8	429.0	244.2
Average annual increase in %	11.9	6.4	4.8	7.5	9.1	12.7	9.9	9.4	22.5	19.6	15.2	20.3	14.8

capitalist world economy. The determining
ors in the accelerated industrial development
ne whole group of underdeveloped countries
e the process of disintegration of the colonial
em of imperialism on the one hand, and the un-
lleled growth of the strength and influence of
socialist world system on the other.
s we have already pointed out earlier, however,
nigher rate of growth of the underdeveloped
tries is extremely insignificant (1.5:1). More-
, this lead in rates of growth is due to the ac-
rated development of only a few countries,
as India, the United Arab Republic, Brazil,
a number of others, chiefly oil-producing coun-
s. The bulk of the underdeveloped countries are
loping more slowly, and some like Indonesia
example, and in particular Burma, have actu-
not yet passed the prewar output level.
s shown by the experience of several underde-
ped countries since the war, the winning of
ical independence makes it possible, given the
petition between the two world systems, to
eve certain successes in overcoming economic
wardness. The rate of economic development
ned by some of the underdeveloped countries
not reached its maximum limit. They could do
ewhat better, on the one hand by strengthen-
heir economic ties with the socialist countries,
on the other through fundamental democratic
ges: radical agrarian reform, further restric-
s on exploitation by the imperialist monopolies,
lopment of the government sector, higher
s on profits, and so on. Thereby new possibili-
would be created for stepping up their econom-
velopment.
wever, in a number of underdeveloped coun-
the ruling classes do not follow this path.
r economic policy is inconsistent and contra-
ry. The agrarian question has not yet been
d, and without its solution successful econom-
velopment is impossible. The agrarian re-
s being put into effect in some of the countries
t even pose the question of the complete elim-
on of feudal survivals in the countryside. The
ms are being implemented chiefly at the ex-
of the interests of the broad peasant masses,
s a result the agrarian overpopulation and the
mely low level of consumption by the masses
continue. A considerable share of the national
ne is concentrated in the hands of landowners,
rs, middle-men and other parasitic sections
iety. The domestic market is expanding very
y. Measures designed to restrict exploitation
imperialists are vague and conflicting. For-
apital continues to control entire branches of
onomy, and the absolute national income of these countries, little as it is, is reduced because the imperialist monopolies withdraw their profits abroad.

The unwillingness of the ruling circles to resolutely limit unproductive and parasitical consumption, the insignificant absolute national income and its dissipation, the universal poverty of the working people in town and country, are limiting the resources available for capital investments, small as they are, and hence also for a higher rate of economic development of the underveloped countries. Calculations have shown that in order to escape from economic backwardness and bridge the gap between the economic levels of the two groups of countries, the present rate of growth must be increased by seven to ten times. History, however, has no record of such a high rate under capitalism. The whole course of postwar development of the economically backward countries shows that they cannot solve the problem of backwardness within the framework of the capitalist system. "It has been found," writes A. Ghosh, General Secretary of the Communist Party of India, "that the capitalist path of development has not only led to the impoverishment of the people, but that there could be no economic development to speak of on this path." (8)

Changes in the Branch Structure of the Underdeveloped Countries' Economy

A special feature of the economic structure of the underdeveloped countries until recently was the predominance of production of primarily mineral and agricultural raw materials. The instruments of labor, except for the most primitive, were manufactured in the industrially developed countries. This is a natural development of the international capitalist division of labor. Monopolization of production of the instruments of labor by the industrially developed capitalist countries ensured them economic control of the underdeveloped countries, constituting the material basis for the latter's economic backwardness. The relations thus established were reproduced on a larger scale from year to year, becoming more thorougoing all the time and widening the gulf in the level of economic and technical development between the two groups of countries. Political domination by the metropolitan countries was the superstructure of the system of economic relations which had evolved, a superstructure the function of which was to consolidate the system of imperialist enslavement of the peoples.

As a result, the nature and trend of economic development of the underdeveloped countries, the

volume of output and variety of products were entirely determined by the needs of expanded reproduction of the industrially developed capitalist countries, primarily the colonial powers. The part of the underdeveloped countries' output which went to satisfy domestic requirements remained practically unchanged both with respect to composition and volume. Scientific and technical progress, and hence progress in production, hardly affected the sphere of domestic production and social life of these countries. Their social and economic life was based on simple reproduction. Expansion of production took place only in the branches of economy which supplied the material elements of objects of labor and auxiliary materials for industrially developed countries. Sometimes the development of production in a particular branch of industry reached a relatively high level. This one-sided development is found in many underdeveloped countries even today. Moreover, the general indexes of the growth in output in individual countries are often fairly high as a result of the rapid development of one of the branches, such as the case in the oil-producing countries. Such development, however, as a rule does not affect industries the output of which goes to satisfy domestic requirements.

In analyzing the peculiarities of the economic development of underdeveloped countries we must not confine ourselves to characterizing their general indexes, which in many cases will give a highly distorted picture of the actual situation. Excessive development of one or two industries, and sometimes even of the production of one product for the foreign market, is a characteristic feature of the colonial economy. The rapid development of one industry, while raising the general index of production in the country, at the same time reflects the intensification of the exploitation of the country and its dependence on the foreign market, in other words, on imperialism.

The achievement of sovereignty and elimination of the colonial superstructure in most of the former colonies, as well as assistance from the socialist world system have created the prerequisites for structural changes in their economy and for achieving economic independence.

Making up the group of economically underdeveloped countries are states with differing economic and political levels and different forms and types of economic and political dependence on the imperialist powers. For this reason, the dynamics and peculiarities of industrial development depend a good deal on the degree of economic and political independence of the particular country.

In the remaining colonies and in the underdeveloped countries which are oriented politically toward the imperialist powers, economic devel ment, as a rule, shows only a quantitative grow while the colonial structure of the economy re- mains unchanged. A noteworthy feature of the nomic development of the countries actively fig ing for their economic independence is that of tative changes leading to alterations in the colo structure of the economy.

Some of the underdeveloped countries are en deavoring to develop their own industries for t production of modern instruments of labor. Bu only a few of them have their own machine-too industry today. No country in Africa or in the and Middle East manufactures its own metal-w ing machine tools, and of the Latin American c tries only Agrentina, Brazil and Mexico make simplest machine tools.

Not counting Japan, India is the only country Southeast Asia which manufactures machine to

The development of the socialist world syste and the assistance it gives to the former colon have put an end to the imperialist countries' monopoly of the manufacture of instruments of bor.

In recent years a number of underdeveloped countries have expanded the production of mac tools. In Argentina a machine-tool plant is unc construction. In India, since she gained nation independence, the output of the machine-tool in try has gone up severalfold: in 1950 machine- production amounted to 2.6 million rupees and 1958 to 37.6 million rupees; (9) in 1958 more t 10,000 machine tools of different kinds were m factured. (10) At the present time India's pla provide more than 20% of the country's requir ments in machine tools. Under the economic d velopment program this industry is to be furth developed. The heavy machine-building plant construction in India with the aid of the Soviet will enable India to organize her own productio capital equipment for the iron and steel indust and the construction of a mining equipment pla also with the assistance of the Soviet Union, w enable her to launch production of equipment f coal mines.

The manufacture of modern instruments of is really only beginning in the underdeveloped tries. In many of them some of the prerequis for building a large machine-tool industry are created today. Development of the iron and st and general machinery industries is proceedin thus far on the basis of imported equipment.

The emergence of capital goods production one of the features of present-day economic d velopment in some of the backward countries is at the same time a manifestation of the cri

structure of the capitalist world economy. In ying the capitalist world economy this phe- enon cannot be overlooked. It is reflected in economic surveys of the United Nations too. To strate, in the World Economic Survey for 1955 we find that in a number of countries which e become new industrial centers in the under- eloped lands, particularly in Brazil and India, ore rapid expansion of production of the means roduction than of articles of consumption has n observed. Structural changes in the same ction have been noted in the manufacturing in- ries of Mexico and Chile.

s stated earlier, in many countries of Asia, ca and Latin America the production of ferrous als, the basic raw material for machine-build- has emerged and is being developed. The ex- ding output and consumption of steel in these tries is one of the major trends of their eco- ic development. In the postwar period the ma- e-building industry began to develop rapidly in a, Argentina, Brazil, Chile, Mexico and Co- bia. True, in most cases relatively simple ma- es and other equipment are manufactured in e countries, the more complex machines being embled from units and parts produced in other tries. However, even in those economically ward countries which have advanced most, the of the machines and other industrial equipment designed for use in the manufacture of articles nsumption. In India, for instance, the bulk of machinery produced in the country goes to the and food industries. (12)

ly a few underdeveloped countries have made e progress in launching their own machine- and general machinery industries. Most of the er colonies and semi-colonies are directing efforts to developing production in the tradi- l branches of industry — the mining, proc- g and light industries. Financial difficulties shortage of scientific and technical manpower thus far not permitted them to go outside the s of the old industries.

their effort to reduce their dependence on gn monopolies, many underdeveloped coun- are developing industries connected with proc- g of raw material for export. Under construc- re petroleum refineries, non-ferrous metals s, and so on. Between 1948 and 1959 the ca- es of oil refineries in the Near and Middle practically doubled, in Latin American coun- they almost tripled, and in South and South- Asia and in the Far East they increased more sixfold. (13) Light industry is expanding, par- rly in the output of commodities which have imported. Factory output of textiles was first begun in Burma in 1951, and in Indonesia in 1953. (14)

Of special interest are the structural changes in industrial production in South and Southeast Asia. In this area as a whole heavy industry has developed more rapidly than the production of consumer goods. Between 1948 and 1956 (15) the output of basic metals, chemicals and of petroleum and coal products more than tripled, while production of foodstuffs, beverages, tobacco articles and textiles has only doubled. For these countries, most of whom were colonies until recently, the establishment of their own heavy industry is something new in their economic life. They are only taking the first steps in this direction.

Compared with the other underdeveloped countries in that area, India has registered the greatest progress in the development of heavy industry. It accounts for 60 to 80% of heavy industry output. (16) The share of India's industry in the industrial output of the capitalist countries has gone up in recent years by nearly 2.5 times — from 0.7 to 1.7%. (17)

Despite considerable financial difficulties, a tendency to build her own industrial foundation by producing her own means of production may be observed in India; and output of the latter industry is developing faster than the output of articles of consumption.

We do not have exact data on the structural changes in India's industrial production. The last industrial census was taken in 1954, in other words, essentially at the very beginning of its independent development. Nevertheless, the data of that census show important, though not extensive, changes as compared with 1946. In 1946 the value of output of the iron and steel, chemical, cement and machine-building industries made up 13% of the value of factory industry, and in 1954 — 18%, (18) i.e., an increase of more than 38%. In the following years this trend was intensified, as may be seen from the entire direction of the country's industrial development. Thus, in the five-year period from 1953 to 1958, India's manufacturing industry as a whole expanded by more than 30%. However, the output of the textile industry went up by only 6% while the output of basic metals increased on the average by more than 35% and the output of machinery by 100 to 130%. (19) Besides, as noted above, since 1954 a number of large, heavy-industry plants are under construction or have been put into operation, and their share in the country's industrial output is increasing.

Data concerning the structure of the national income also testify to the development of this trend (see Table 3 on p. 60).

Table 3

Dynamics of India's National Income*

	In 1948-1949 Prices (in billion rupees)		In Percent	
	1948-1949	1957-1958	1948-1949	1957-1958
Total National Income of which:	86.5	108.3	100.0	100.0
Agriculture, forestry, fisheries	42.5	49.3	49.1	45.5
All industry	14.8	18.8	17.1	17.4
Trade, transport and communications	16.0	21.0	18.5	19.4
Other spheres**	13.4	19.2	15.5	17.7
Income from abroad	- 0.2	—	- 0.2	—

* The Eastern Economist, May 8 and 29, 1959.
** Income of professional people and government employees.

As can be seen from the table, in the decade from 1948/1949 to 1957/1958 the national income went up by 25.2% in constant prices. The share of the different branches did not change uniformly. Income from agriculture went up by 16% but its share in the national income decreased by more than 7%. Income from industry rose by 4 billion rupees, or 27%, and the share of industry in the national income increased. Although on the whole the rise was small, yet some change may be noted. A marked change occurred in the structure of income from the different branches of industry.

In 1948/1949 income from industry was 14.8 billion rupees, of which the mining industry accounted for 4% (0.6 billion rupees), manufacturing — 37% (5.5 billion rupees), and small-scale industry — 59% (8.7 billion rupees). In 1957/1958 (in current prices) the mining industry accounted for roughly 7% (1.4 billion rupees), manufacturing — 45.4% (9.5 billion rupees), and small-scale industry — 47.7% (10 billion rupees). (20) The increase in the shares of the mining and manufacturing industries (mills and factories) was particularly marked. The share of the small-scale and handicraft industries declined but still makes up nearly half of the value of all industrial output.

The rise in industry's share in the national income reflects the developing process of the country's industrialization; and the 22% increase in the share of output of the manufacturing industry (mills and factories) in this decade and the 20% drop in the share of small-scale industry show machine production has begun to replace hand la bor. Prospects are opened for higher labor pro ductivity and a further rise in the national inco

The increase in the capacity of India's electri power stations and in the output of power also te to this. Between 1948 and the end of 1957 the capacity of India's electric power stations more than doubled (from 1,411,000 to 2,886,000 kw.), the same was true of power output (from 4,572, 000,000 to 10,872,000,000 kwh.). Particularly i portant is the increased use of electric power f industrial purposes and for irrigation, in other words, where the use of electricity produces th most tangible economic effect, sharply raising bor productivity. Consumption of electric powe industry went up from 2,434,800,000 kwh. in 19 5,864,000,000 kwh. in 1957, or almost two and a half times. Consumption of electricity in agric ture rose during the same period from 121,200, kwh. to 406,800,000 kwh., or more than three times. (21)

The structural changes observed in industria production are clearly seen in the dynamics of proportions of the principal branches of the ec omy according to the number of employed facto and office workers.

Table 4

Structural Changes in India's Industry as Shown by the Number of Factory and Office Workers Employed (1950, 1955, 1957)*

Industry	Total number employed		In % of total		Increase between 1950 and 1957, in %
	1950	1957	1950	1957	
All industry	2,940,041	4,018,444	100	100	36.7
Mining	471,761	651,321	16.0	16.2	38.1
Manufacturing	2,468,280**	3,367,123	84.0	83.8	36.4
of which:					
textiles	1,020,239	1,199,670	34.7	29.9	17.6
cotton-cleaning	83,575	149,746	2.8	3.7	79.2
food (exclusive of beverages)	426,865	645,938	14.5	16.1	51.3
printing	19,585	27,169	0.7	0.7	38.7
iron and steel	93,738	113,969	3.2	2.8	21.6
machine-building (exclusive of electrical)	94,374	137,458	3.2	3.4	45.7
electrical machinery	7,833	10,334	0.3	0.3	31.9
railway equipment	181,294	282,332	6.2	7.0	55.7
ceramics, cement, silicate, etc.	105,210	143,196	3.6	3.6	36.1
chemical	62,062	94,435	2.1	2.4	52.2
other branches of manufacturing industry	365,945	543,941	12.4	13.4	48.6
electric power, gas and waterworks	7,580	18,935	0.3	0.5	150.5

* Calculated from data printed in Monthly Abstract of Statistics, September, 1959. These data from India's official statistics cannot accurately reflect changes in employment in all branches of industry as they are not fully comparable. The 1950 figures do not include data for some states that are included in the 1957 figures (Kerala, Mysore and Rajasthan). However, since the inaccuracy applies equally to all branches of industry (the change in the total labor force is overstated by the number of employed factory and office workers in these states), the data cited correspond to a certain extent to the changes which occurred in India's industrial output.

** Figure obtained by adding up the branches of the manufacturing industry.

can be seen from Table 4, the oldest branch of industry — textiles — has developed more ly than some of the branches of heavy industry. e the number of workers employed in the textile in- ry rose by 17.6% between 1950 and 1957, in some ches of heavy industry the increase was 40 to 50%.

In a relatively brief period changes took place in the shares of a number of branches of industry in India. To be noted, first of all, is the important fact that the share of factory and office workers employed in the textile industry declined. While on the whole the number of workers employed in

this industry went up somewhat between 1950 and 1957, the share of this industry in the total number of workers employed in industry dropped from 34.7% to 29.9%. The proportions of the machine-building, chemical and railway equipment industries increased. The share of industries called "others," which includes chiefly branches of the munitions industry, also increased.

The decline in the relative weight of the textile industry as reflected in the drop in the share of factory and office workers employed, and the rise in the relative weight of the machine-building, chemical, railway-equipment and other such industries, are further proof of the relatively rapid development of new branches of industry. Actually the development is proceeding faster than is indicated by the figures cited above. Changes in the share of workers employed, while reflecting the main trends in the structural changes in industry, cannot give an accurate picture of the changes in the ratios of individual branches, for technical progress and hence labor productivity have been growing quite unevenly in the different industries. The new industrial enterprises which have been put into operation in India in recent years are, as a rule, equipped with the latest advanced machinery. Most of these enterprises are in the new branches of industry (machine-building, chemical, railway-equipment, and so on). Productivity of labor in these industries has been increasing considerably faster than in the older ones (textiles, food, and so on). Consequently, the relative weight of the new industries in the national economy is actually higher than is indicated by the figures for the increase in employment of factory and office workers by industry.

The structural changes in the economy of the underdeveloped countries are not only reflected in changes in the relative weight of the separate branches of the economy.

Further aggravation of the structural crisis of the capitalist world economy is also reflected in the striving of the countries that have become independent states to become less subject to the fluctuations of the capitalist world market by increasing their self-sufficiency in articles of prime necessity.

The dependence of many underdeveloped countries on the export of one or two products has always led to their economic instability. Today, in the period of rapid scientific and technical discoveries, basing the economy on a limited range of commodities under capitalist conditions may quickly lead to an economic collapse. For instance, a relative deline in demand for cotton as a result of the rapid growth in the production of synthetic fibers treatened the future of the Unite Arab Republic, the Sudan, Iran, Turkey and othe cotton-exporting countries. The same may be sa of the rubber-producing countries as a result of the growth in production of synthetic rubber. El inating the single-crop system is a very importa task facing underdeveloped countries.

In analyzing the deterioration of the position o the underdeveloped countries as a result of the crisis of 1957-1958, the authors of the UN World Economic Survey for 1958 arrived at the conclusion that "in the final analysis a solution can be found only by making the economies of the under developed countries less subject to the fluctuatio of income due to marketing a small number of r materials. This can be achieved only through ge eral economic development. ... In the final analysis," the Survey went on to say, "this mean not only the organization of domestic production formerly imported capital goods, raw materials and foodstuffs, but also a sufficient expansion of production to permit the export of some of the c modities that are now being imported." (22)

Many underdeveloped countries have been tryi in one way or another to solve this complex prob lem. India, Indonesia and Ceylon, for instance, are trying to increase the production of food so to become self-sufficient in the next few years. In the Sudan a number of measures have been ta to make the country's economy less dependent o cotton. Plantations of new crops are being estal lished, such as pineapples, bananas, citrus fruit coffee and gum arabic. (23)

It will take a comparatively long period and a immense effort to solve this problem. Most of t underdeveloped countries have not even begun to solve this problem while some have only taken t first steps in this direction.

In the course of their economic growth many underdeveloped countries are also trying to solv another important problem, namely, that of changing the distorted distribution of the produc tive forces in the country. This applies primar to such big countries as India and Indonesia. Th are faced with the problem of creating a new ge graphical distribution of industry, bringing it cl to the sources of raw materials and consuming areas, and mobilization of the untapped wealth t meet the needs of the country's economic devel ment.

While the colonial powers ruled these countri production was orientated toward the foreign m ket. The railway network and individual industr enterprises for processing raw materials were located in areas which made it possible to rapi lower the cost of production of the raw materia

was to be exported to the metropolitan country
o improve the conditions for selling manufac-
s from the latter. Since becoming independent
s the governments of the new sovereign coun-
, in working out their economic development
rams, have taken into account the irrational
ibution of the productive forces and have out-
l ways of changing it. For instance, in the
n Government's decision of April 30, 1956 on
y in the sphere of industry we read: "Indus-
zation will benefit the economy of the country
rge only if the gap in the level of development
e individual areas is systematically narrowed.
absence of industrial enterprises in a particu-
art of the country is very often due to shortages
e needed raw material or other natural re-
ces. Concentration of industry in some areas,
rn, is due to the access to power resources,
enient water supply and development of trans-
ation facilities. One of the tasks of national
ning is to provide all these things in the areas
h are today industrially backward or in which
e is an acute need for creating opportunities
crease employment, provided that the particu-
rea is suitable for industry in all other
ects. Only by ensuring a balanced and coordi-
d development of industry and agriculture in
area can the country as a whole achieve a
r standard of living." (24)
ce India has become independent certain changes
location of industrial production may be ob-
ed there. (25) First of all, a more balanced
rsion of industry has begun and is being ex-
d to areas where industry is poorly developed,
t at all. Changes are taking place in the dis-
tion of the cotton, sugar, cement, and the iron
teel industries. The rules covering the use
nsport have been changed, and they are now
ned to improve communication between areas
n the country.
en more difficult is the problem of distribu-
roductive forces in Indonesia. In that country
lk of the population (roughly 65%) and practi-
all industry and ground transport are con-
ated on the islands of Java and Madoera. The
f this vast island country is sparsely popu-
and economically backward. The Indonesian
rnment is trying to develop the country's
my and at the same time to solve the prob-
f changing the distribution of the productive
s. Mills and factories are being built and
sunk on the outer islands. On the islands of
antan, Sumatra and Sulawesi a number of
ures have been taken to develop agriculture
e construction of roads and canals has begun.
will make it possible to undertake extensive
development in the interior of the islands and open up new land for cultivation and natural resources for exploitation. These tasks are all associated with resettling a vast number of people from the island of Java to the sparsely populated areas. Plans provide for resettling 11 million people (2.2 million familes) from the densely populated to the sparesely populated areas between 1959 and 1968. (26)

A number of measures designed to change the location of production are being implemented in the Egyptian Region of the United Arab Republic and some other countries.

***

The changes we have outlined are not large in scale, for the social and economic base in the former colonies following the capitalist path is not sufficient for greater advances. These countries have remained agrarian with important survivals of feudal relations and a limited home market; exploitation by the imperialist monopolies continues. Insofar as the problems facing the underdeveloped countries are being solved in a capitalist way, their development is proceeding unevenly and with contradictions present. The relatively low rate of industrial development limits the possibility of rapid structural changes in their economies. However, the changes taking place in the structure of their economies have become more or less distinct and they are gaining ground. The accelerated rates of growth of the underdeveloped countries, the tendency to reduce disproportions in the structure of the economies of the former colonies and to strengthen their economic independence are among the major manifestations of the crisis in the structure of the capitalist world economy. The imperialist powers are forced to a certain extent to revise their relations with the former colonies.

This, of course, does not mean that the nature of imperialism has changed. It is the conditions of its existence which have changed. The rapid development of the socialist system and its increasing effect on the world economy, as well as the disintegration of the colonial system have given rise to new processes in the capitalist world economy, and these processes no longer stem only from the laws governing capitalism but also from the conditions developing in the period of the coexistence of the two world systems.

Decisively influencing the nature of the relations between the imperialist and underdeveloped countries is the degree of development of the national-liberation movement in the particular country, the vigor and consistency of the changes in its social and economic structure and the firmness of the relations established by the particular country

with the socialist world system. The prospects for the development of these relations are determined by the course and results of the competition between socialism and capitalism on the world arena.

The economic growth of the underdeveloped countries depends a great deal on the scale and character of the assistanee given them by the industrially developed states. "The experience of recent years clearly shows," Comrade N. S. Khrushchev underscored in his speech to the iron and steel workers in Bhilai on February 15, 1960, "that there are two different approaches in the world to the problem of aid to the economically underdeveloped countries. The Soviet Union and the other socialist countries want their economic and technical cooperation with these states to help accelerate the development of the former colonies and semi-colonies, to strengthen their national independence. But in the West some people use their 'assistance' as an instrument of a new colonial policy, as a means of ensuring the interests of monopoly capital and extending the political division of the world into hostile groupings."

In the present situation, when the socialist camp is rapidly solving the problem of surpassing capitalism in material production, when the economic ties of the Soviet Union and other socialist countries with the young national states of the East are growing stronger from year to year, the imperialist maneuvers are doomed to failure. The every increasing help given by the socialist countries to the underdeveloped states is an important factor in hastening the structural changes contemplated in their economies.

Footnotes

(1) Monthly Bulletin of Statistics, UN, May, 1959.
(2) ibid., January, 1958.
(3) Japan Economic Year-Book, 1958.
(4) The general index of industrial output of Southeast Asia is somewhat overstated also because the index for Pakistan is falsified. It covers merely those branches which are developing successfully, namely the manufacturing and processing industries. The extractive industry is not covered. But this is not the main thing. The index was computed on the basis of the value of factory output in 1954 in such a way that one half of its weight applies to the cotton industry, which has only begun to develop and whose rate is relatively high. The index does not include the branches which are not developing, and the significance of these branc can be judged from the fact that in 1954 the val their output was a quarter of the value of total tory output of Pakistan. Moreover, some figur included in the index have been specially adjust for seasonal fluctuations and do not reflect the mean price level.
(5) Calculated on the basis of data from the Monthly Bulletin of Statistics, May, 1959.
(6) The Eastern Economist, Annual Numbe 1957.
(7) Monthly Bulletin of Statistics, May, 195
(8) New Age, August 16, 1959.
(9) Monthly Abstract of Statistics, June, 19 p. 19.
(10) Commerce, October 3, 1959, p. 560.
(11) World Economic Survey 1955, New Yor 1956, pp. 43-45.
(12) Industrial Engineering, Annual Number 1959.
(13) See "The Economic Condition of Capita Countries — Survey of Business Trends in 195 and the Early Part of 1959," supplement to the magazine Mirovaia Ekonomika i Mezhdunarodn Otnosheniia, 1959, No. 8, p. 62.
(14) World Economic Survey, 1955, p. 45.
(15) Economic Survey of Asia and the Far E 1958, Bangkok, 1959.
(16) Calculated from figures in Monthly Bul of Statistics, January, 1958.
(17) Calculated by Scientific Worker S. M. I honina of the Institute of World Economy and I national Relations.
(18) Fifth Census of Indian Manufactures, 19 Report of the Ninth Census of Indian Manufactu 1954, p. 4.
(19) Economic Survey of Asia and the Far E 1958, Bangkok 1959, p. 182.
(20) Computed from data given in The Easte Economist, May 29, 1959.
(21) The Eastern Economist, May 8, 1959, p
(22) World Economic Survey 1958, New Yor 1959 (retranslated from the Russian).
(23) Foreign Commerce Weekly, March 23,
(24) Cited from Tulsi Ram Sharma, Distrib of Industry in India, M., 1959, p. 407 (retransl from the Russian).
(25) For a more detailed treatment see Tul Ram Shara, ibid., particularly the annotations some chapters by A. I. Levkovskii, editor of t Russian edition of this book.
(26) Antara, July 21, 1959.

25 Mar 610

PROBLEMS OF ECONOMICS REPRINTS FOR CLASSROOM USE

Translations of Selected Articles from Soviet Economics Journals

ALL ARTICLES REDUCED TO 75 CENTS EACH

Fundamentals of Labor Law of the USSR and the Constituent Republics: A Draft *(Sotsialisticheskii Trud*, 1959, No. 10, pp. 4-16).

S. PARTIGUL: Demand and Supply Under Socialism *(Voprosy Ekonomiki*, 1959, No. 10, pp. 80-89).

T. KHACHATUROV: Economic Effectiveness of Integrated Mechanization and Automation *(Voprosy Ekonomiki*, 1959, No. 12, pp. 61-74).

R. NAZAROV: The Increasing Level and Changing Structure of Food Consumption in the USSR *(Voprosy Ekonomiki*, 1959, No. 11, pp. 110-119).

E. ANTOSENKOV and V. MOSKALENKO: The Soviet Union's Program of Reducing the Working Day and the Working Week *(Planovoe Khoziaistvo*, 1959, No. 11, pp. 30-38).

L. KANTOROVICH: On the Calculation of Production Inputs *(Voprosy Ekonomiki*, 1960, No. 1, pp. 122-134).

F. BYSTROV: The Organization of International Settlements Among Socialist Countries *(Voprosy Ekonomiki*, 1960, No. 2, pp. 112-119).

V. STAROVSKII: On the Methodology of Comparing Economic Indices of the USSR and the USA *(Voprosy Ekonomiki*, 1960, No. 4, pp. 103-117).

IA. IOFFE: The Level of Labor Productivity in the USSR and the USA *(Planovoe Khoziaistvo*, 1960, No. 3, pp. 45-55).

The Economic Research Institute of the USSR State Planning Committee: American Economists on the Competition Between the USSR and the USA *(Planovoe Khoziaistvo*, 1960, No. 1, pp. 11-26).

E. VARGA: Twentieth Century Capitalism (*Mirovaia Ekonomika i Mezhdunarodnye Otnosheniia*, 1960, No. 1, pp. 34-59).

A. KATS: On the Question of the So-Called "Income Revolution" in the USA *(Mirovaia Ekonomika i Mezhdunarodnye Otnosheniia*, 1959, No. 8, pp. 84-103).

G. RUBINSHTEIN: The Development of Soviet Imports *(Vneshniaia Torgovlia*, 1960, No. 5).

30% discount on bulk orders of 10 or more copies of any article

ALL ORDERS MUST BE PREPAID

INTERNATIONAL ARTS AND SCIENCES PRESS
156 Fifth Avenue, New York 10, N. Y.